

MoD gaffe lets in copying safeguard

by Philip Hunter
THE Ministry of Defence has made an embarrassing mistake by failing to notice a patent taken out early last year on a device designed to prevent tape-to-tape copying of software.

The Ministry slapped an embargo on an almost identical product patented late last year, preventing it from being sold or marketed for an indefinite period.

The product which escaped the Ministry's notice was developed by Systembridge of Upminster, which claims that its device has not yet been cracked by a pirate.

Systembridge director Jack Hawkins admits that his product is in principle the same as the one recently embargoed by the Ministry of Defence. "But they are different in detail," he says.

Perhaps the detailed differences account for the one being embargoed, and the other not, suggests Hawkins.

The embargoed product was developed by JLC Data of Barnsey, which filed a patent on it late last year in the hope of cashing in on the industry's dire need for a software protection device that works.

But the patents office decided to refer the product to the Ministry of Defence under Clause 22 of the 1977 Patents Act, under which information about a patent of potential threat to national security can be withheld from the public.

Lord Lloyd of Kilgerran, a patents lawyer and hon secretary of Picom, the Parliamentary Information Technology Committee, says the Ministry probably decided to embargo the JLC product because it was thought to enable people in some way to access classified information from a computer terminal. But if another similar product had already been patented, then the Ministry was wasting its time.

Meanwhile JLC Data's Jim Lamont, who invented the device, feels hard done by because he is barred from selling or marketing the product.



Top Sinclair men, Sir Clive and Nigel Searle look farther afield as Timex bows out.

Sinclair expands as Timex quits

by Nuala Moran and John Kavanagh
SINCLAIR Research is to look further afield for sales as its US manufacturer and distributor, watch manufacturer Timex, bows out of the home computer market.

Timex was put off by last year's savage price wars, which also forced giant Texas Instruments and toy company Mattel out of the home computer business.

Announcing the decision, Timex vice-president for sales and marketing C. Jacobi says: "Analysis of the home computer market shows that 1984 will be another year of turmoil. We believe the value of inventories will decline, making it difficult to make a reasonable profit."

But Sinclair had already announced plans to "dramatically enhance" its sales outside the US and UK, which run at 60% of its total.

And a Sinclair spokeswoman says: "We understand Timex' reasons. It is a license of our technology, so we can't dictate how it uses it."

She adds that Sinclair has no plans to take over marketing the ZX81 or the Spectrum in the US and that this will not affect plans to market the QL in North America.

Timex did not have any rights to the QL but it will continue to manufacture computers for Sinclair in the UK at its Dundee factory.

Jacobi says Timex will honour guarantees and do repairs and continue to supply parts to other companies in the industry.

Demand for the QL overtook supplies only two weeks after it was launched in mid-January, Sinclair blamed a higher than expected demand for this. Would-be QL owners are now receiving letters saying the promised 28-day delivery dates will not be met and the Advertising Standards Authority is already investigating complaints.

Sinclair's expansion plans include the licensing of companies in South America, Africa and Asia to build its products, which are sold through distributors in some 50 countries.

The company is now looking for two top people to develop further the markets in France and West Germany.

The spokeswoman says: "These managers will have none of the trappings of a big office. They will organise their own time to manage the strategic development of Sinclair in those countries."

Sinclair also wants an export manager to push business in the Middle East, Eastern Europe and Africa.

Taxmen vote in technology deal

by Nuala Moran
THE taxmen have voted to accept the new technology agreement thrashed out between their union executive and the Inland Revenue which promises a minimum of compulsory redundancies as a result of the computerisation of Paye.

And 400 suspended staff returned to duty on Wednesday after 66.4% of the Revenue staff voted for the agreement.

A spokesman for the taxmen's union, the Inland Revenue Staff Federation (IRSF) denied that the 30% against the agreement was higher than expected. "There was some stirring on the broad Left in favour of not signing, but the result is quite clear. Accordingly the executive committee decided that the new technology agreement should be signed."

The 400 or so staff in the West Midlands who were "temporarily relieved from duty" for refusing to operate VDUs voted 357 to 25 to accept the agreement at a secret ballot in Wolverhampton last Friday. They returned yesterday.

Under the terms of the agreement the Revenue has agreed to spread the benefits of computerisation to the staff. A joint study on "self determination" will be set up to give staff the chance to decide on their own working patterns.

But the union also had to agree to accept 4,000 job losses as a result of the Paye computerisation before 1988. The Revenue said this will be done by a combination of "natural wastage and transfer".

This agreement will have repercussions for other Civil Service unions seeking new technology agreements. They could also be affected by a court ruling against the IRSF which could be used by the government in future disputes.

The IRSF took the Revenue to court, because it said, the use of computers without a new technology agreement broke the taxmen's terms of employment. But Mr Justice Walton said that the nature of their jobs had not been changed, only the way the jobs were done.

Court blocks Fast sub

by George Black
TOP US software house McCormack and Dodge has suffered a setback in its attempt to revive an accounting system which was hit by a court injunction.

It intended to replace the Fast report writer, the subject of the injunction, with an alternative package from Software International. But now a court in Washington has blocked this move.

The court says it will re-hear the case on March 12 and give a decision on April 10. But meanwhile McCormack and Dodge cannot use the Software International alternative.

The case began with an injunction by the court preventing McCormack selling the report writer outside the US. Its author, ABC Management Systems, said it had only agreed with McCormack over US distribution rights.

ABC says it has instructed lawyers to proceed to sue against RTZ Computing Services, the UK distributor of McCormack's financial systems. But last week RTZ said it had received no word from ABC.

British Telecom falls asleep on leap year

by Dave Madden
CHAPS, the new Clearing House Automated Payment System, failed on February 29 because British Telecom forgot that 1984 is a leap year.

The system, which came into operation amidst loud controversy last month, uses British Telecom's Packet Switched Stream data communications network, PSS, to pass payment transactions between the clearing or settlement banks. The system failed because those messages emerged from PSS dated March 1.

An embarrassed spokesman for BT confessed: "We pass timing information to CHAPS from the PSS system clock in Rugby. We thought CHAPS only interrogated us for the time of day - not the date."

BT dismissed the error as "one of those teething problems that afflict any new system", and added, "It was quickly corrected".

Jim Reeves, assistant manager of the CHAPS project minimised the fault's significance. "BT had a problem, but the banks have procedures to handle that sort of thing and not everybody was affected," he said.

But a spokesman for Lloyds Bank said: "We effectively lost CHAPS for the whole day. We reverted to the wired payment system that we used to use."

He was at pains to point out that payments had merely been delayed, and insisted: "None of our customers were put out."

A Barclays Bank spokesman said: "The central switching did go in the morning but we have a contingency. We'd rather not say how we recovered."

Reeves made a positive virtue out of the affair: "It is very early days for the system and this might prove to have been a useful exercise."

British Telecom's PSS network will be the basis of most of the UK's electronic funds transfer systems in the future. CHAPS uses a closed user group on the network.

British Telecom is understood to have been told to get itself "a more expensive diary" by irritated CHAPS officials, when the system failed.

Donald Kennett adds: PSS, the first of RT's X-Stream digital telecommunications services, opened in 1981 and has since grown more rapidly than originally expected. But throughout the 1970s controversy raged over the economics and practicality of both providing packet networks and using them.

Telephone companies were worried about the profitability of telecommunication services being undermined, banks were worried about the security of their transmissions, and other users thought there could be a tricky situation involving packet networks being economic for some types of traffic but not others.

Computers brings out a Lynx

CAMBRIDGE-based micro manufacturer Computers has unveiled its latest Lynx computer, the Laureate. It is aimed at the small business/hobby market and runs CP/M applications software. The eight-bit machine has 64K workspace memory and 64K video memory, an eight colour screen and an expansion bus for a printer, joystick or ROM software. Price is £399.95, which puts the machine in the same bracket as Acorn's BBC micro and the Sinclair QL.

Satellite success

THE European Space Agency successfully launched the eighth satellite in the Intelsat V series on Monday. It was the ESA's sixth successful payload launch and the last before it delegates launch responsibility to Ariane in May. Previous launches include the ECS-1 European communications satellite and the seventh Intelsat V. ESA will be responsible for all five of the ECS satellites, the second of which is due up in July.

Commodore signs

COMMODORE has signed an agreement with Canadian firm Bytec-Commerz covering the development, under license, of an IBM-compatible portable computer. This would be based on technology used in Bytec's Hyperion micro.

Hard disk

UK MICRO maker ACT is to launch a hard disk version of its Apricot business micro this week. It is also expected to announce a massive price decrease. The disc will be integral to the machine, replacing one of the Sony 3 1/2-inch micro floppy drives, bringing another big deal to Rodime for its 3 1/2-inch Winchester.

Skill shortage holds micros back

by Nuala Moran
MORE evidence that a shortage of trained engineers is holding back the introduction of microelectronics in British industry came this week. A new survey suggests there are about 46,000 engineers in the UK with microelectronics expertise, but at least another 21,000 are needed.

And that number is expected to grow substantially as the needs of existing users increase and others begin to use microelectronics for the first time.

The conclusions of the survey, which is published by the Policy Studies Institute (PSI), are in line with the "people crisis" being experienced in other segments of the industry.

Last week at the Computing Services Association annual meeting in Bournemouth concern was expressed at the difficulty in recruiting trained staff for key roles in small to medium sized software companies (see page 2).

The survey finds that the UK has made more progress than expected in the application of microelectronics to its products and processes in the last two years. But we are still pretty much on the starting blocks, according to Jim Northcott, co-author of the survey.

His view is based on a nationwide survey in 1983 of 1,200 factories by the PSI which showed that nearly half the factories in the UK are using, or planning to use, microelectronics in their products or in their production processes. This is an increase of 20% compared with two years ago.

Only one factory in 10 is using microelectronics in its products, whereas more than four factories in 10 use them in processes. But Northcott says a lot of these users are relatively unsophisticated.

"Many people are using micros in process applications because they just happen to have bought machines with micros in them - they don't really know anything about the technology."

Altogether microelectronics are used in 7% of the total output of manufactured products and to control about 18% of processes. The lead in using microelectronics is Continued on back page



MATHEWSON... "Probably the largest for the UK."

Greenock gets boost

NATIONAL Semiconductor is to spend £100 million on its Greenock factory to establish a world first for microprocessor manufacture and create 800 new UK jobs on top of 200 it has already created.

The company aims to be the first to mass produce its micros on six inch wafers - a technique which will allow it to produce more chips at a cheaper cost per unit. And National Semiconductor (NatSemi) will double the size of its Greenock factory to 325,000 sq ft and allow the company to treble its current 1/2 million a year production of wafers.

Lloyd Ayles, NatSemi support services manager, says: "We are the advanced guard. Only Intel is producing six inch wafers in any real numbers and those aren't substantial." IBM produces its own for internal use and semiconductor maker Motorola is widely tipped to start a similar production facility in East Kilbride.

Dr George Mathewson, chief executive of the Scottish Development Agency (SDA), says: "We believe that this is the largest inward investment ever in Scotland for a single project, and that it is probably the largest for the UK."

NatSemi is to get a government financial package but officials of the SDA and of company refused to put a total figure to government assistance.

Win £50

A SPECIAL Computer Weekly prize is being awarded to the best entry to the Microquest competition. Microquest, which is sponsored by Williams and Glyn's bank in association with the Department of Trade and Industry's Microelectronics Application Project (MAP), is a scheme to find innovative ideas from young people for using microelectronics in industry. Full details on page 15.

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CDC shuts mainframe Plato to favour micros

by John Kavanagh
US manufacturer Control Data (CDC) is closing its mainframe Plato training system service in the UK to concentrate on microcomputer-based Plato packages.

A Cyber 720 mainframe serving users across Europe is going back to the US and users are expected to be on microcomputers from UK firm System, which Control Data partly owns, by the summer.

All staff have been offered jobs in the company.

"We now have better Plato products in the form of standalone systems," says sales manager Peter Furness.

"In addition this is in line with the way the bureau business is going."

"And European companies are more receptive than the US to the idea of distributed computing through micros."

Furness says the mainframe service will continue in the US, where communications costs are cheaper. Some UK customers will be linked to the US until the summer when all the mainframe facilities become available on microcomputers.

One Plato staff member says there are 10 mainframe users in the UK.

Furness says there are more, although most have been moving to microcomputers anyway.

"We are exceeding our targets," he claims.

"There's now a general awareness of computer-based training in the UK, and people are moving out of the pilot project stage," Furness asserts.

"More people approach us these days."

Peripheral sales give IBM a 90% boost

by Keith Holder
IBM peripherals sales leapt nearly 90% last year, while office systems climbed a respectable 60%.

These figures come from the company's report for 1983, which breaks down last year's \$40.2 billion turnover.

Peripherals sales, reckoned to have been boosted by the success of the 3380 high capacity disc drive, for which no real competition exists yet, were the largest single contributor, totalling \$10.74 billion.

Office systems, which include workstations and the IBM-PC and PC XT, made \$8.03 billion while processors occupied second place with sales of \$10.74 billion. The latter showed only a 5.8% increase over the year.

Not everything was so rosy for IBM, however, and revenue from rentals showed a marked decrease. This was most severe in the processors market, dropping 28.4%, and accounts for the poor increase in this sector.

Rentals of peripherals were hit too, with revenues down 11% to \$4.78 billion.

The US rental pool showed less shrinkage than elsewhere, on average down 13.5%.

Other categories which showed gains were program products, up almost 36%, and federal systems operations, which operate only in the US.

This is the first time IBM has given such a detailed breakdown on industry sectors because, says a spokesman, "such data was not required before."

Training, testing and other business stayed at the same rate as the previous year, and are largely confined to the US.

Other facts brought out in the report include a 1.3% gain in the number of employees.

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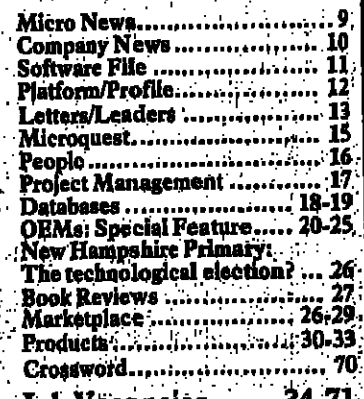
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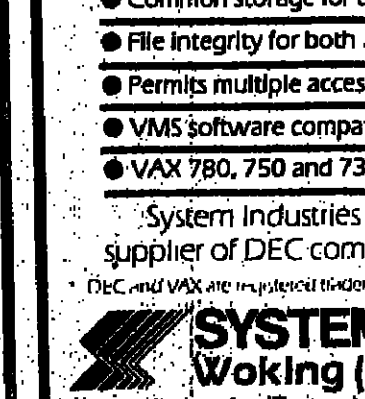
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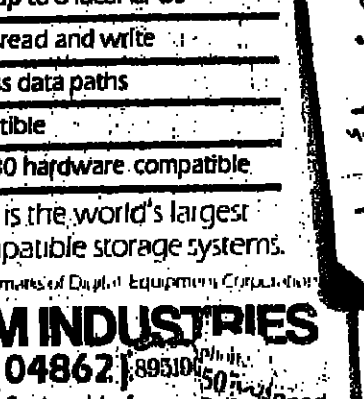
How computers helped Hart to win



Job Vacancies



OEMs: a guide through the labyrinth



Job Vacancies

George Black reports from the Computing Services Association's Bournemouth conference

Speakers storm at static services

THE plaudits and fast-moving computer services business has been accused of "a tendency to hardening of the arteries".

The charge was made by consultant Peter Cunningham at the opening session of the first national residential conference of the Computing Services Association in Bournemouth last week.

His remarks were picked up by later speakers and became the theme for a series of variations.

Cunningham, president of the US market analyst Input, went on to say that many computer service companies had missed out on the micro revolution, believing that the new machines were just toys.

Companies such as AIP Network Services had continued to grow by specialisation during the

recession, he said. The recession had hit hardest at the end of 1982 and now things were beginning to take off for service organisations again.

But he saw resistance to change from various quarters. People who still referred to "the data processing department" were five years out of date, he said. And many programmers rejected fourth generation languages because they had spent 10 years learning Cobol.

There was also resistance from top executives who were beginning to cancel bulk orders for micros because the expenditure did not improve productivity.

Similar warnings were sounded during one of the conference workshops by BIS chairman Roger Graham.

"When I look at our industry, I think there is too little change," he said.

"There is no other way than to get big. You have got to reach \$100 million by 1988."

Graham argued strongly for acquisition as the road to viability. "Acquisition gives not only faster growth but better quality growth and allows diversification. It enables a shuffling of the pack to provide more stimulation. One of the big issues for our industry is the ability to change our companies."

But in contrast to Graham, Cato Carpenter, of market analyst Alex Brown, argued for going public rather than acquisition or merger. He attributed Cullinet's success to going public early.



GRAHAM... "There is no other way to get big."

Data Bill includes word processors

by our Parliamentary Correspondent

THE government has made it clear that word processors are not to be exempt from the Data Protection Bill.

David Waddington, Minister of State at the Home Office, told MPs that only certain operations involving word processors which did not threaten individual privacy would be exempt.

There was to be no exclusion of any particular type of machine.

The Commons standing committee finished its work on defining what computer operations were to be covered by the Bill, and then moved quickly through Clause Two dealing with data protection principles.

The Lords heard that the government was determined to extend its "must carry" rule introduced in the Cable and Broadcasting Bill to include telex and computer programmes associated with the BBC and independent television. The



"must carry rule" was brought in to oblige operators of cable television to transmit the existing television services as well as new ones designed for cable.

Peers discussed the Telecommunications Bill last week, and Lord Cockfield, Chancellor of the Duchy of Lancaster, tried to allay fears that British Telecom might abuse its still dominant position, after the Bill becomes law.

There had been suggestions that BT be split into its component parts in similar fashion to American Telephone & Telegraph.

In the Commons, MPs heard that it should be possible from 1985 for police forces to transfer data directly to the police national computer when their own local machines ran out of storage space.

Spectre of staff crisis haunts the delegates



CUNNINGHAM... "Primarily it will affect users."

THE spectre of the people crisis hung over another otherwise optimistic residential conference of the Computing Services Association.

Speaker after speaker referred to restrictions being imposed by the impossibility of recruiting enough trained staff for almost all the key roles in small to medium-size firms.

Doug Byrnes, director-general of the association, in his opening address, said this was the main limiting factor on all of them. There was no shortage of customers or of money, but there was of salesmen, project managers and account executives.

Consultant Peter Cunningham, of Input, agreed: "The software skills problem will become much worse and primarily it will affect users."

Brian Mills, another consultant, spoke of the difficulties of retaining staff after acquisition or merger with another company, which he said was far more difficult than the retention of customers.

Gordon Ewan, director of the industry training council, said anx-

ieties expressed on this question meant it ought to be discussed further at future conferences.

Pactel managing director Cameron Low described "the vicious circle of not having time to train the trainees who would give us the productivity to give us more time".

He said that to find aptitude tests which would identify exceptional programming talent was a hopeless task.

The shortage of staff is difficult to quantify, said Ewan, but to judge from increased advertising for computer posts - as much as 56% up in some cases over last year - there certainly is a shortage.

Ewan added that estimates of shortages fluctuate between 2,300 and 15,000 staff. "Everybody is chasing harder for a relatively small pool of trained people," he claimed.

The assembly was in general in a buoyant mood. Byrnes expected the UK computer services sector to crash the £1 billion barrier this year. In 1973 it was £100 million.

Engineers want £200m training cash

THE Engineering Council last week called for an extra £200 million from the government to train engineers. It wants the cash to come from arts-based budgets from the Department of Education and Science.

An Engineering Council spokesman says a significant part of that sum would go towards training engineers in IT skills such as computer-aided design, manufacture and engineering.

Personal cuts

COMPUTER Ancillaries (CAL) is dropping the price of its British-made IBM-PC lookalike by one 25%, to £1,495. Sales of over 1,000 machines since the machine's launch last year have enabled the company to reduce its price. CAL chairman Ian Skinner, 39, has also announced price cuts in his Personal Computer of 20% (see page 9).

Novel award

SIR Clive Sinclair will award the Sinclair prize for fiction next month. The prize of £5,000 is given annually for an unpublished novel of social or political relevance. Over 200 entries from all over the world were received for this year's competition. A shortlist of four has been drawn up by the panel of five judges. The presentation will be made on April 4.

Spending boost

JAPANESE manufacturer Hitachi has announced increased spending on its semiconductor divisions for this year. It will raise group capital from last year's 70 billion yen to 110 billion yen for the year to March 1985. Hitachi expects a 30% increase in sales of semiconductors this year, worth 400 billion yen. Mitsubishi is also raising its semiconductor investment, and is projecting the same sales growth as Hitachi.



Time is running out for this year's Computasters.

Stars' deadline

ENTRIES close for Computasters '84 next week. March 16 is the final date for runners, jumpers and standers to get their acts together and their forms in. Full details of the rules and regulations, and an entry form for the competition, appeared in the February 16 and 23 editions of Computer Weekly. The first heat takes place on May 5 at Barmley, followed by Crawley, Birmingham and Belfield. The UK finals will be in Birmingham on August 4.

CAFS re-launch pays off

by Philip Hunter

ICL's Content Addressable File Store (CAFS) is at last winning orders after its re-launch last year. The company has now delivered about 25 CAFS-ISP controllers, which run under the VME operating system with the Querymaster enquiry language on 2900 series mainframes.

There are now 164 units on order from 85 different customers, and the company says volume shipments are just beginning.

CAFS is a piece of hardware which enables data records to be extracted from a database at disc transfer speed, without taking up so much of the central processor as in the traditional software approach.

In a recent demonstration, authenticated by the DMW consultancy group, an ICL 2966 system with CAFS was almost three times faster than a comparable IBM 3081 system for a data retrieval exercise.

A CAFS-ISP controller costs £30,000, so the total value of current orders is about £5 million.



CARMICHAEL... "Upsurge in demand from end users."

CAFS marketing manager, Hamish Carmichael, says about half the orders are from central and local government, and the remainder from retail, insurance and manufacturing firms.

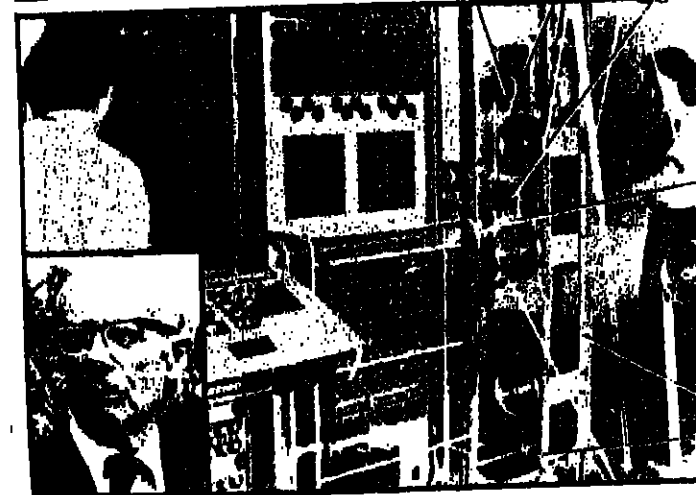
The Southern Water Authority, which has three units on order, says CAFS has resulted in much shorter database search times, and allowed manpower savings.

"A planned development of our creditors system has been avoided, saving £60,000 in manpower costs

alone, due solely to CAFS-JSP," says Peter Drake, computer services for the authority.

The previous version of the product proved a commercial disaster, with only five systems sold.

According to Carmichael, the new version announced last year for VME has been keenly sought by end users. "My only concern is whether our DF customers are prepared for the upsurge in demand from end users."



Colossus in operation at Bletchley and (inset) Max Newman.

Colossus pioneer Max Newman dies

by John Riley

ONE of the pioneers of computing, Professor Max Newman died last week. He was 87.

Newman played a key role in defining the mathematical requirements for the first electronic programmable computer, Colossus, which was built at Bletchley Park during the war to decode German military messages.

Colossus became operational in 1944. Input to the system was via five-hole punched paper tape in a closed loop, read at 5,000 characters per second, and output was via a teleprinter. Its characteristics included electronic store registers, conditional logic instructions and variable programming.

The machine's application was to break the Germans' Enigma code generator, which it accomplished successfully. The main problem for transferring the tech-

nology involved in the machine was the secrecy surrounding the project. That resulted in Britain losing a post-war lead in electronic telephone exchange technology.

It was only in the late 1970s that enough information about Colossus was released to shatter Princeps University's claim to have invented the first modern computer, Eniac, in 1946.

Newman is reported as telling all working on Colossus at the end of the war that "one of the prices of peace must be the losing of the most interesting job we've ever had."

Newman went on to become professor of mathematics at Manchester University, 1945-64, where among his staff was Alan Turing, the father of artificial intelligence. It was at Manchester, in 1948, that the first universal electronic digital computer was developed.

Amdahl catches up

by Keith Holder

IBM plug-compatible manufacturer Amdahl has launched two new mainframes on the heels of IBM's 308X series enhancements.

The 5867 and 5868, part of the company's 508 mainframe series, are designed to restore the 20% price/performance advantage between Amdahl and IBM machines.

They bridge the gap between the top-end 580 microprocessor, the 5860 and the more powerful dual processors, the 5870 and 5880. Bryan Little, managing director of Amdahl's UK division, says the additions offer an easier upgrade path and provide further support for MVS/SP and VM/SP users.

IBM's changes to its 308X series mainframes include new models of the 3081 Q and K, 3083 B, E and J, and the 3084 Q. The new models add an X to the model suffix and have between 5 and 14% greater internal performance.

Memories have been expanded on the 3081 KX and 3084 QX to 64 and 128 Mbytes respectively. But improvements have been achieved by re-packaging the internal components.

Little says the new IBM machines eroded the price/performance differential held by the existing 5860, "putting us in a psychologically embarrassing position. That has been corrected."

US set to outlaw copycat micros

by Keith Holder

MAINUFACTURERS who copy microcomputers could face their first concerted attack by the US government, if an order by the US International Trade Commissions (ITC) banning their import becomes law.

The ITC unanimously agreed last week that some two dozen Asian manufacturers are illegally copying micros made by Apple Computer. As a result, the Commission is expected to issue an order today to outlaw machines like the Pineapple and Orange Plus II.

This will not come into effect immediately. There is a 60-day period during which President Reagan must decide whether to accept or overrule the order.

If approved, US Customs officials will be able to seize any copycat machines, regardless of who makes them, upon arrival. "We are greatly relieved by this."

It will mean we don't have to fight each case individually any more," says a spokesman for Apple.

Software houses which write packages under licence for Apple will also be covered by the order.

The ITC decision is the culmination of a two-year battle by Apple to stop the flow of copies of its Apple IIe computer from Hong Kong and Taiwan, which started to appear on the US markets in 1981.

One potential flaw in the order is that it may not cover the latest breed of imitator, which is imported without a read-only memory (ROM) chip. This contains Apple's instruction set and is the main proof that the machine infringes the company's copyrights.

Meanwhile, IBM has recently scored three more victories against US companies in its campaign to stamp out plug-compatible micros which copy its Personal Computer too closely.

The first casualty was Corona Data Systems, which lost in a suit filed by IBM alleging copyright infringement of its instruction code. Corona has agreed to produce a "less controversial" version of its code and suspend shipments of its micros until this has been achieved.

Corona supplies its IBM-compatible machines to Wordplex, the word processor systems company, and has an agreement to supply Olivetti with portable, desk-top computers to be marketed by Docutel-Olivetti in the US.

A spokesman for Wordplex UK division says there will be no problem supplying its customers.

A similar agreement was reached between IBM and Handwell, a US importer of equipment from Taiwan.

Most recently, IBM won a permanent injunction against Eagle Computer, stopping it from using IBM's input/output code on its own personal computer.

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VT100, VT101, VT102, VT103, VT104, VT105, VT106, VT107, VT108, VT109, VT110, VT111, VT112, VT113, VT114, VT115, VT116, VT117, VT118, VT119, VT120, VT121, VT122, VT123, VT124, VT125, VT126, VT127, VT128, VT129, VT130, VT131, VT132, VT133, VT134, VT135, VT136, VT137, VT138, VT139, VT140, VT141, VT142, VT143, VT144, VT145, VT146, VT147, VT148, VT149, VT150, VT151, VT152, VT153, VT154, VT155, VT156, VT157, VT158, VT159, VT160, VT161, VT162, VT163, VT164, VT165, VT166, VT167, VT168, VT169, VT170, VT171, VT172, VT173, VT174, VT175, VT176, VT177, VT178, VT179, VT180, VT181, VT182, VT183, VT184, VT185, VT186, VT187, VT188, VT189, VT190, VT191, VT192, VT193, VT194, VT195, VT196, VT197, VT198, VT199, VT200, VT201, VT202, VT203, VT204, VT205, VT206, VT207, VT208, VT209, VT210, VT211, VT212, VT213, VT214, VT215, VT216, VT217, VT218, VT219, VT220, VT221, VT222, VT223, VT224, VT225, VT226, VT227, VT228, VT229, VT230, VT231, VT232, VT233, VT234, VT235, VT236, VT237, VT238, VT239, VT240, VT241, VT242, 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Mathematica forges micro link

FOURTH generation software specialist Mathematica last week pushed into the mainstream micro link market with its Ramlink - but the company doesn't expect to make a fortune directly from the product.

Richard Cobb, Mathematica Products Group president, says: "The personal computer element is only \$185 a copy so it will not have a big impact on our volume. You have to sell an awful lot of those to make a million."

"But because it gives the users what they want we expect it to bring a substantial increase to sales of Ramlink II," Cobb asserts.

Ramlink II is a fourth generation language and database management system with 1,100 users worldwide and is the main product of the \$30 million a year plus group.

It was the pioneer of the non-procedural languages, those computer languages which do not re-

quire rigidly formatted coding and commands.

And Mathematica expects to make a string of new products announcements this year. Cobb says: "Last year we launched 12 new products."

"In 1984 we will be launching 14."

Ramlink is a software product for the IBM-PC and XT marketplace and provides facilities for bi-directional data transfer between mainframes and micros without the need for protocol conversion hardware.

The system has a mainframe and a micro element with the software for the mainframe costing between \$4,500 and \$9,000.

The price is dependant on the performance rating of the mainframe.

It can access data stored on Ramlink II, VSAM, ISAM, or sequential files and IMS, DL1, IDMS of the IBM supplied systems and

Total and Adabas database systems.

And Ramlink will automatically reformat between a series of popular personal computer software tools from various sources, including Lotus 1-2-3, the top selling VisiCalc and the ITSoftware Company's series.

It supports keyboard or mouse control. Cobb sees Mathematica, which was taken over last year by US aerospace giant Martin Marietta, making significant improvements to Ramlink II this year.

He explains: "For big heavy on-line production jobs - where you have 1,000 terminals updating the database simultaneously - our database was not as good as it should have been."

"We have the software for that now and it will be delivered in the autumn."

"We just have the packaging and some other parts left to do first."



COBB... "In 1984 we will be launching 14 products."

Northern Telecom unveils Vienna

NORTHERN Telecom Systems this week launched a new family of computer and office information systems for the European market.

The Vienna family is based around a choice of three data processing units and includes a range of intelligent terminals and other peripherals which are linked by local and wide area networks. Prices start at \$5,000 for a multi-function terminal.

Vienna incorporates MS-DOS and Xenix operating systems and supports the international standards organisation X.25 and SNA communications. Communications links are based on the Ethernet local area network.

A new processing unit enables users to access Vienna functions.

Barry Eames, vice-president Europe, says: "The Vienna family is an international products line design to meet the varying and stringent technical, language and ergonomic requirements of the European market".

Rediffusion looks for UK partners

by John Kavanagh
REDIFFUSION Computers has seized on a National Economic Development Office (NEDO) report, calling for a united front by UK office equipment firms against foreign multi-nationals, as its way ahead.

The company is looking for trading and research and development partners - but insists it is not looking for buyers, contrary to speculation after six months of poor trading in the middle of last year.

The NEDO report, published last month, says a consolidated UK response to foreign competition is urgently needed. It shows the UK market for office systems was worth £100 million in 1982 - and UK firms met less than a third of the demand.

"We're not talking to anyone yet, but we've only just started," says Mike Aldrich, chief executive of Rediffusion Computers.

"This plan will strengthen the company in its existing markets and provide for better exploitation of new opportunities."

Aldrich laughs off reports in other journals that BET, the company's parent, is talking to Nixdorf and Control Data about selling Rediffusion Computers. These rumoured prospective buyers also deny any interest in the company.

One report refers to "BET chairman John Spencer Wills". Sir John retired two years ago and is in his 80s.

BET itself put out a statement last Friday denying the reports. Aldrich says his firm had six months of poor trading after 14 years of profits. "There was no specific reason," he says. "There were no lay-offs and we're now doing very nicely."

Viewdata is "going great", he asserts. Rediffusion Computers is the leader in the market, he says, which is growing at 40% a year in the UK.

One "minor worry" is the new, hard US attitude to selling equipment to communist countries. Rediffusion Computers does a third of its business overseas - and most of that in Eastern Europe.



ALDRICH... "We've only just started."

DHSS list narrows to four

by Nuala Moran
COMPUTERISATION of social security offices came a step nearer last week when the Department of Health and Social Security announced a shortlist of four micro suppliers who "might" be invited to tender.

The four are: British Olivetti; BT Merlin in association with Logica VTS; Gresham Lion Electronics in association with Casu Electronics; and Systime Computers. They will "be considered further for the supply of microcomputers for the department's local offices".

The DHSS plans to introduce about 2,700 micro systems into over 500 local offices over a nine-month period in 1985. This is part of the department's 20 year, £700 million operational strategy to computerise the whole of the social security system.

The shortlist announced last week is part of the Local Office Microcomputer Project (Lomp). A DHSS spokesman says: "The purpose of Lomp is to help local office staff with supplementary benefit assessment."

"Eligibility for supplementary benefit is means tested and there are many criteria. At the moment this all has to be worked out by pen and paper. The systems will also be used for more routine administrative tasks."

The shortlisted suppliers will help in developing Lomp. "They will be working with us in greater detail, but it doesn't mean they will all end up supplying," says the spokesman.

He also confirms that a proposal to have three area computer centres serving the whole country has gone to ministers for consideration. Originally seven centres were planned, one in each DHSS region.

The spokesman explains: "Continuing investigations have gone on since the operational strategy was published and the conclusion is that we need three centres."

He adds: "We're not quite at the stage of talking to the computer industry, but we will be talking very much more about positive results towards the end of this year with implementation starting early in 1986."

ICL gives details of combined PC

by John Riley
ICL has finally given formal details of its new 16-bit Personal Computer, which combines ICL and Rair technology. ICL also announced last week that for the first time it will sell its PC directly to large accounts.

There are two versions, each based on Intel's 8088 chip and ICL's own designed processor board. The Model 16, which sells for £1,995, offers 256 Kbytes of RAM expandable to one Mbyte and twin floppy one Mbyte discs, while the £3,995 hard disc version, Model 36, has 256 Kbytes of RAM and one floppy disc, together with a 10Mbyte hard disc.

The machines, which were partly designed by ICL in Bracknell, are manufactured in Kidsgrove under licence, and ICL pays royalty fees to Rair. ICL expects first deliveries to be made in April.

The PC has six RS232C I/O ports, including four workstation ports, and handles colour. ICL supplies the Japanese company Kokusai's colour terminal for an extra £1,295. The PC offers multi-

user concurrent CP/M. ICL's own direct salesforce will sell the PC to large accounts. That marks a move from its PC marketing strategy to date, where PC sales have been handled through third parties under ICL's Tradepoint scheme, which has over 500 outlets worldwide.

So far, at least two software companies have announced packages for the 16-bit PC. Systems Union has launched an accounting package and Solitaire-KPG is to supply a solicitor's package.

Other software houses have similar plans in the pipeline, including, for example, Microm Computers and Bits Systems, which both produce travel agents' packages.

The Rair Business Computer on which ICL's PC is based, and which has already been available for a year, has dual 16-bit 8088 and eight-bit 8085 processors offering CP/M-80, CP/M-86, MP/M-86 and MS-DOS 2.0. It has 256 Kbytes RAM, one Mbyte floppy disc drive and 19 Mbyte hard disc is around £5,200. See Software File, page 11.

NatSemi aims for PoS top spot

by Dave Madden
NATIONAL Semiconductor DTS will become the world's leading supplier of point-of-sale scanning systems this year. That is the aggressive prediction of UK managing director Gordon Ambidge.

"The company was formed just a year ago, following the takeover in the US of Data Terminal Systems by National Semiconductor. Ambidge says that DTS has made a "huge investment and is in a very strong position in the point-of-sale market". He expects the company to win 50% of worldwide scanning systems sales in 1984, and 30% of the general



retail point-of-sale (PoS) market. Ambidge estimated that the latter market is worth around £20 million in the UK, and says: "It is set to explode and will be well over £100 million by 1987."

McDonnellrevives its Tymshare plans

by Dave Madden
McDONNELL DOUGLAS, the US aerospace and defence group, has revived its plans to buy Tymshare, the Californian data transmission company. McDonnell has offered to pay \$25 cash per share, which means about \$307.5 million for shares tendered.

Two months ago, the two companies cancelled an earlier agreement in which McDonnell would have paid tender \$372 million. That deal, first mooted last November, fell through after McDonnell attempted to negotiate a lower price following criticism on Wall Street suggesting it was paying too much.

Since then, Tymshare has reported a loss of \$1.6 million for fiscal 1983. The company may have been forced back to McDonnell because other suitors, thought to have included Honeywell, did not come up with a satisfactory offer.

This time the mechanics of the agreement also grant McDonnell an option to purchase 2.3 million unissued Tymshare shares at \$25 each. McDonnell will buy all shares tendered if at least 90% of Tymshare's outstanding shares are tendered. If between 40% and 90% is tendered McDonnell will acquire a 49% stake.

The main attraction of the merger for McDonnell is Tymshare's Tymnet data communications service, which it intends to integrate into its information systems business. At the moment, that consists of McDonnell Douglas Automation Company, or McAuto, and Microdata. The resulting division would have combined revenues of some \$1 billion.

Telenet represents about 75% of Tymshare's business. The company's loss in 1983 compared with profits of \$8.8 million in 1982, while revenues slipped by 3% to \$288.6 million. Tymshare has reported losses in four of its last five quarters.

Earlier this year, McDonnell acquired Computer Sharing Services, a subsidiary of Rio Grande Industries in Denver, which offers computer services to telecommunications companies.

There is still some scepticism on Wall Street that the deal, described by John McDonnell and Thomas O'Rourke, presidents of McDonnell Douglas and Tymshare respectively, as a "definitive agreement", will stand up. They see it having negative implications on McDonnell's earnings in the short term. But unlike the earlier agreement, Tymshare's shareholders will decide this time.

Lotus sets up European arm

by Claire Goodling
LOTUS, star of the US microsoftware market, is about to put real muscle behind its European operation - but not for its famous 1-2-3 decision support package.

Lotus is setting up a European Product Development Group to adapt its new database, word processing and communications Symphony for European users.

Lotus has already recruited people to translate and adapt the documentation, and last week advertised four top jobs in software development and marketing.

"We're setting up in Europe for two reasons," explains the managing director of International Product Development, Stephen Turner. "First we feel it is necessary to produce versions of Symphony in European languages, and secondly there may be machines which are more popular in Europe than they are in the US and really need support and implementation here."

The Product Development Group is starting with French and

German versions of Symphony as its first projects, and will be installing a Vax machine dedicated to communications with the US parent.

Symphony was launched in the US in February, but is not expected in the UK until the second half of the year. Like the 1-2-3 package which made Lotus's name, Symphony is aimed primarily at the IBM-PC market, but unlike 1-2-3, it will be made available on other systems and in other languages as fast as possible.

'THE COMPANY COMPUTER' VS 'THE PERSONAL COMPUTER'

Businessman Smith wants a microcomputer system for his smallish but buoyant company. He buys a typical Personal Computer to start things off. It costs him about £3000.

Businessman Brown, with a similar problem and a prudent eye on the future, opts for the SAGE. It costs him £5500, but it does have 4 times the capacity and can handle up to 6 users.

In no time, Smith's staff have taken to computing and want a second machine - another £3000.

Brown too organises a 2nd workstation - he only pays £595 for an additional screen and keyboard.

Both bosses are asked to supply printers. Smith has to buy two for his PC's. Brown only needs one because his SAGE was designed for sharing.

Vital statistics

32-bit MC 68000
2 million operations per second
256K-1MB memory
Up to 72MB storage
6 users plus printer
Total information sharing
Wide range of applications
SAGE monitor speed up to 19200 baud.
SAGE II from £3130.
SAGE IV from £5850.
SAGE monitor/keyboard from £595.

Please send me the Sage brochure giving details and prices/call me to arrange a demonstration.

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THE COMPANY COMPUTER.

Reader Enquiry No. 18

Business is good for both companies, but whilst Brown's bill for a 6 user system is £11,000, poor Mr. Smith has forked out just over £21,000.

And his troubles aren't over yet... Because his staff need to share the company's information, it's going to cost him at least an extra £4500 to network his system together. What's more, his dealer has recommended he does it with a SAGE!

THOSE LEGS ARE MADE FOR WALKING. IN LONDON, LIVERPOOL, MANCHESTER. NEXT WEEK. SEE OUR AD. ON PAGE 97.

IAL aims at new network techniques

by Robert Parry
IAL Data Communications aims to bring expert systems techniques into network management. It has released an upgraded version of its Medius network management system, called New Medius, which as it stands can be seen as an expert system. It is built on years of experience within IAL, and suggests causes of network failure and ways round failed circuits.

Within five years the system could become self-healing, says marketing manager Hugh Findlow. This would allow it to learn quickly how to restore networks after faults have been detected. Such a system would use the present hardware with upgraded software.

"New Medius is an all-embracing network management package," says Findlow. "It gives full management control for real time teleprocessing networks."

With New Medius we have an interactive graphical representation, showing how the network is all joined up, which allows you to restore the network direct from the computer screen."

The system is independent of the physical network, and the intelligent diagnostic units scattered



FINDLOW... "All-embracing network management package."

around the network to monitor its status are transparent to the data on the network. There is no degradation of the network, even if the diagnostic units fail.

The software at the heart of New Medius - the major advance according to Findlow - comes from within the IAL Group. A joint development team was set up between the Data Communications division and US subsidiary

Ocean Data Systems, a graphics specialist 65% owned by IAL. IAL itself is owned by STC.

Development of the system cost £1 million over two years.

The software runs on a Vax 11/75, and the whole management system works out at somewhere between £3,000 and £5,000 a line. Typical networks have 50 to 100 lines, though they may stretch up to 5,000 lines.

Thorn gets BR ticket to success

by Philip Hunter
THORN-EMI is to supply British Rail with computerised machines to handle all ticket-issuing, in a £25 million contract announced last Monday.

The contract, one of the largest ever for point-of-sale equipment, involves replacing all existing ticket-issuing equipment over two years from April 1985.

BR will be supplied with 2,971 Apsis (All Purpose Ticket Issuing Machines) for use in station ticket offices, and 1,750 Portis (Portable Ticket Issuing Machines) for use by guards on trains.

The equipment was developed and will be made by Thorn-EMI Electronics at Wells in Somerset.

BR invited tenders for the Apsis equipment in 1980. There were 18 bidders, including Westinghouse, which supplied an interim ticket issuing system to BR's Southern Region ticket offices.

"We won on the basis of price and technical performance," says Les Adams, engineering manager at Thorn-EMI Electronics. "Our

Apsis is a far more compact machine than any other."

Other machines on trial comprised a desktop console and a larger processor to sit underneath the counter hidden from view.

"Ours is a single module machine, with just a desktop console," says Adams.

The new machine will print all the ticket information, including destination, on blank cards, rather than just add the price to pre-printed tickets as present systems used by BR do.

The Apsis machines will have 512 Kbytes of bubble memory to store information about ticket transactions during each day, and the data will be sent up by telephone to BR's central mainframe at Nottingham each night.

The Portis machines will have 64K of CMOS RAM to record transactions. They will be plugged into a data retriever each day which will transmit to the central mainframe in the same way as the Apsis.

The printed tickets will be magnetically coded to help BR fight fraud.

SALES BRIEF

MoD picks Scicon kit for map work

SCICON, the UK systems house, is to supply the Ministry of Defence with computer equipment worth almost £1 million to help produce maps and models of battle field terrain. The ministry will receive a workstation and graphics terminals for a variety of applications, including validation of data from previously digitised maps, generating models of terrain, and demonstrating to cartographers the benefits of map systems based on digital data. One benefit is the maps of different scales can be generated without the customary manual labour.

Oxford export

OXFORD Computer Systems has won a £30,000 export order for intelligent interfaces for the Commodore Vic and 64 microcomputers from California-based software and peripheral supplier HBS. The order is for 3,000 Interpods, which enable users of the Commodore machines to link up with equipment such as printers and plotters via IEEE and RS232 protocols.

Typeset standard

THE Northcliffe group of provincial newspapers plans to standardise its offices on computer-based typesetting systems supplied by GB Techniques of Prestwick, Scotland. Already six newspapers in the group use terminals and equipment supplied by GB Techniques, and four more are to install systems worth £200,000 in the next three months, leaving 12 remaining newspapers in the group committed to computerise in the next few weeks.

Rugged Husky

HUSKY Computer, the Coventry-based micro-maker, has now sold rugged portable computers worth £300,000 to the Ministry of Defence, following a new order. The systems are used for data capture and controlling distribution of parts in the field. Some of the latest batch will be used by US Air Force bases in the UK.

Councils buy

PACKAGE Programs of London has sold accounting software to four more local authorities in the last month, earning £150,000. Over 30 local authorities now use the company's accounting software, which runs on a variety of mainframes, including the IBM 4300 range, and minis, including the IBM System 38 and the Honeywell DPS7.

Top-of-range sale

ICL has sold a 2957 top-of-the-range mainframe, including its Content Addressable File Store (CAFS) to Avonmore Creameries, one of Ireland's main agricultural co-operatives. The combined value of this order, and a previous one of this order, and a previous one of this order, is £1 million.

BP Oil first

BP OIL is the first UK user of the Massnet networking system, developed by Master Systems International. BP will use Massnet to link a number of Sperry mainframes and DEC Vax minis at its Hemel Hempstead computer centre, and may later extend the system to other BP machines at remote sites.

City underwrites

CITY Computer Services has earned £300,000 from two orders for insurance underwriting systems. The company is to supply its system to Sedgwick Group Underwriting Services, and Winchester Fox & Co, with terminals installed in both companies' local offices and in their City-based underwriting rooms.

Future expands to spread risks

by Dave Madden
FUTURE Technology Systems, the fast-growing Scottish OEM, has formed two new subsidiaries. Future Technology Developments will be a specialist design and development company, and Future Technology Services will be an independent service and maintenance organisation.

Managing director Peter McHugh explains that Future Technology will spread the risks of being dependent on just one activity and "become a holding company with investments across a whole range of computing areas".

The company will create further subsidiaries during the year, and may put its manufacturing effort into a separate company.

John McCrossan, managing director of Future Technology Developments, says that the new organisation is a natural extension of the company's move to tailor its standard systems for customers on

an OEM basis, and the fact that it has constantly been commissioned to do independent projects. McCrossan expects to accelerate the process by giving the operation a separate identity.

Most of the new company's business will come from its parent company this year, but that dependence will fall off in 1985. It is already working on the next generation of Future Technology products, which will go straight up to Intel's 80286 processor.

It is developing enhancements to the current Series 86 range, and looks set to produce a Unix machine and networking products this year.

The new operation has substantial third party contracts in-hand already. It is building 80188 chip board, using an Intel 80188 chip for British Telecom Merlin. It will handle Future Technology's Department of Trade and Industry office automation project for the

Leicester constabulary, and it is doing software work for Ferranti. Future Technology Services is another attempt to exploit and extend existing business. Managing director David Shear says that he will look for maintenance contracts amongst new manufacturers and distributors, particularly companies coming to the UK for the first time, and companies with service problems in isolated areas.

"The microcomputer market is growing at such a rate that there is a great demand for a multiple product engineering service on a local basis," he says.

It will provide service either on-site or at local service centres, four of which will be in place by the end of 1984. Shear would not reveal precisely how he intends to cover the country, but he will be making a further announcement soon.

The company will handle popular ranges of business micros, including IBM, Apricot and



McHUGH... "Future will become a holding company with investments across a whole range of areas."

Televideo machines, and peripherals, as well as servicing the customers Future Technology Systems supplies as an OEM, such as Office and Electronic Machines. McHugh says that Future Technology Systems is still on target for a public flotation in 1985, and his

preference at the moment is to seek a full listing. Last July, when the company raised £2.75 million in a private share placing, it forecast turnover in the year to December 31, 1983 of £6.5 million. McHugh says that the company is not far off, whilst it

will make at least £13 million this year. Future Technology Developments and Future Technology Services are expected to turn over £3 million and £400,000 respectively in 1984. The company's order book stands at £12 million.

Barclays chooses NCR for inside machines

by Philip Hunter
NCR, the world's leading supplier of Automatic Teller Machines (ATMs) for cash dispensing, has taken a £5 million order from Barclays Bank for new ATMs designed for use inside a building.

The bank is taking 500 new ATMs to add to its existing stock of 650 outdoor "through the wall"

dispensers, and may later order more for some of its other 3,500 UK branches.

NCR has 46% of the world market for ATMs and 56% of the domestic market, with over 3,000 machines installed in the UK.

Three of the four major high street banks, Barclays, Midland, and National Westminster Bank,

went to NCR for their ATMs, while IBM, the nearest competitor, supplied Lloyds Bank.

The new, indoor ATM was designed for use in airports, offices and shopping precincts as well as in banks, and is smaller and faster than NCR's existing models. Barclays has bought a £9,300 version for cash dispensing only.

BT looks at new micro from Bromcom

by Keith Holder
BRITISH Telecom is evaluating a new multi-user microcomputer from Bromcom, a small UK company which designs and produces its own hardware and software.

The 16-bit system, the SuperStar-16, has already been placed on the Central Computer and Telecommunications Agency approved list of microcomputers.

The system concept is the brainchild of Bromcom's managing director, Ali Guryel, who says he started thinking about designing multi-user systems while working for GEC some 10 years ago.

Bromcom was formed in 1978 to help businesses choose the best hardware and software for their computing needs.

Bromcom launched an eight-bit multi-user system in 1982, and around 100 systems have been sold so far.

He says that he is excited about the BT interest in the new system, and thinks that it is among the frontrunners to replace BT's current generation of office distributed systems.

A spokesman for BT says that the situation is part of the company's strategy of looking at technically interesting products.



GURYEL... "Excited."

If BT is sufficiently interested, the spokesman adds, it could mean large orders for Bromcom and could be adopted either for internal use or as part of the Merlin range.

The system uses a 16-bit microprocessor to co-ordinate up to 16 eight-bit or 16-bit micros, one per user. The processors are connected through an \$100 data bus.

Each user has a screen and keyboard. A printer can be attached, although the main processor can be used with a common printer. Up to 160 Mbytes of hard disc storage and tape streaming back-up can be used.

The system has its own operating system called Impos, which allows two industry standard operating systems to run under it concurrently.

Entry level cost for SuperStar is £2,450, and a two-user system with 10 Mbytes of disc storage costs £6,975.

Root supports Ada with Unix

UNIX systems house Root Computers has added Ada to the languages supported by the Unix operating system. Root, which specialises in the UnixPlus 68000-based implementation of the

system, is distributing Ada in the UK for its originator, the Irvine Computer Science Corporation.

Root is also providing the packages and utilities that programmers require when using Ada, such as I/O routines and mathematical notation of integers and floating point values.

The compiler currently available contains most of the features specified for Ada, one of the largest languages ever created. The package includes the Ada linker, runtime support, installation guide and reference manual.

Its UK price has not yet been decided, but is likely to be a little more than the £5,500 for which it sells in the US on 68000-based kits.

A FEW WELL CHOSEN WORDS OF EXPERIENCE

WMS, VMS, PDP, PL/I, COBOL, BASIC, FORTRAN, SAS, IMSL, DBC, VSAM, REXX, JCL, ISPF, TSO, S/PS, and many more.

SEE US ON PAGE 37

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French jobless turn to computers, says report

by Jack Gee
FRANCE'S Economic and Social Council, a body established by the constitution as watchdog over the government's economic policy, says that information technology is the only solution to French unemployment now well over the two million mark.

A report by Bernard Boisson, a council expert, argues: "We must play the information technology card for all it is worth. Although computerisation involves massive problems in the short run, it is the only answer to the job crisis in the medium and long term."

Boisson adds: "Unless we develop informatics, we cannot achieve the economic results on which our social progress depends."

The Economic and Social Council's report shows that manpower, or more accurately manpower, has been playing an increasing role in French industry, with the development of service activities and the shrinking of manufacturing.

These service industries, to which information technology makes an ever increasing contribution, have been developing at an annual rate of 0.6%.

However, France has been slower in introducing computerisation than its neighbours, according to Boisson. Two years ago, France operated only 19.5% of computers installed in Europe, compared with West Germany's 26.6%.

Times Books goes on file

by George Black
LONDON software house Southdata is to mount Times Books' commercial and geographical data on the Superfile database.

Customers will be able to get details of the Times Top Thousand trading companies and of places listed in the Times atlases.

Southdata head, Peter Laurie, former editor of *Practical Computing*, says it is a collaborative experiment to find if a market exists. He is aiming mainly at IBM-PC users.

"It is no good offering such data in the form of a textfile. It needs to be searchable and Superfile's free format is ideal for this," he says.

He has licensed expert system source code from Donald Michie of Edinburgh University, so that users will be able to derive rules from the mass of data to help them plan their business moves.



UNIX and C Intensive Workshop

APRIL 10th-12th
The Computer Science Department of The City University, London is running a 3-day short course called: "An Introduction to the UNIX Operating System and an Overview of the language C" costing £280. Lectures providing an in-depth understanding will be interleaved with supervised, on-site, practical sessions, and a day's free tutorial time will be offered to attendees on the 13th. The workshop should be particularly attractive to Managers (Senior, DP, System) and Analysts (System, Programmer).

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The Digital LA12.

Intel falls behind in 32-bit race

by Keith Holder

INTEL is falling behind in the 32-bit microprocessor race. The US semiconductor manufacturer says that its true 32-bit iAPX 386 processor will not arrive until mid-1985, despite earlier predictions that the device would be available at the end of this year.

This gives competitors, particularly its US rival, National Semiconductor, a substantial lead. National promises customers that they will have the 32-bit 32032 chip in June this year, and versions with boosted performance are promised for next year.

And Motorola is running close behind. It expects to start shipments of its 68020 chip, the 32-bit member of the 68000 family, by the third quarter this year.

A spokesman for Intel denies any production delays or technical difficulty with the 386 chip, and says that the company will not suffer by being last. "We have an established customer base which is quite happy to receive deliveries next year," he claims.

Haas Rohrer, National Semiconductor's European product marketing director for microsystems, disagrees, and doubts that Intel will actually deliver its processor before the end of 1985, or even early 1986.

"It has already got problems with the 286 processor," he says,

"and is diverting resources to correct this."

The 286 is Intel's virtual memory 16-bit processor, compatible with the high selling 8086 and 8088 but running at much higher speeds.

Rohrer says that this planned compatibility is at the heart of Intel's current problems with the 286 and could slow down the 386 development considerably.

He is also sceptical about Motorola's ability to deliver its 32-bit contender on time, saying: "We do not know of anyone who has actually seen silicon from Motorola. It is using new technology and it is unrealistic to expect such a complex part to be produced with no problems."

He concedes that on paper the Motorola device looks "a really nice part".

NatSemi will not stand still, he asserts, and will capitalise on the lead gained in this area. It plans to implement its first modification to its 32032 by mid-year.

Called the 32032B, it will have its speed boosted to 12MHz by shrinking the component parts, which, together with modifications to the architecture and interfaces, will boost performance by some 40%, says Rohrer. A further refinement, the 32032C, should give a ten-fold performance increase over the original processors by the end of 1985.

Honeywell has also signed up with France's Groupe Francais D'Informatique to buy a French



GEISLER... Held off until Sphinx was ready.

Sphinx opens in Silicon Valley

by Dave Madden

SPHINX, the Unix systems distributor formed in Maidenhead less than a year ago, is to open an office in Silicon Valley.

The operation will be funded by a \$200,000 investment from San Francisco venture capital fund, New Enterprise Associates.

Sphinx's founder, Dr Pamela Geisler, says that her US suppliers, including Yares Ventures, Bridge Communications, Olympus Software, and prospective customers have all encouraged Sphinx to make the move. The office will provide a West Coast outlet for Sphinx's UK suppliers too.

New Enterprise Associates is one of the major US venture funds with assets of over \$100 million. Its high-tech investments include portable computer maker Gavilan and 3 COM. This is the first time that it has put cash into a UK company.

In December, Sphinx landed a £1 million second round of funding from the Olivetti venture capi-

tal fund and its two original investors, Abingworth and Alan Patricof's Peter Englander says that this new injection should be considered as part of the same round.

Geisler says that New Enterprise had wanted to come in that stage fund a US operation, but she had held the company off until the considered Sphinx was ready.

Geisler comments that both Sphinx's sales and profits are on target, and that her investors are suitably happy. But she concedes that the company's progress has proved slower than she had anticipated a year ago.

"No one disputes that the market for Unix products is there, but it is creeping along slowly in the UK, partly because hardware for Unix is not shipping in vast quantities. We've been flooded with prospects, but the large buyers haven't really bitten yet," she says. She adds that much of Sphinx's revenue so far has come from consultancy work.

Honeywell boosts French videotex

by Jack Gee

THE French videotex industry has scored a major success in the US with an order by Honeywell Information Systems for an initial delivery of 2,500 Minitel. Minitel is a low-cost, user-friendly terminal already widely used in France.

Telcel Alcatel, a big supplier to the French market, won the contract.

Honeywell has also signed up with France's Groupe Francais D'Informatique to buy a French

videotex software package called Telesource. Honeywell will supply and maintain this product in the US.

Announcing the new orders, Roy Bright, managing director of Intelmatique, the marketing arm of the French telecommunications authority, said: "These products have been developed from France's own national videotex programme, Teletel. Now they are available to any American business which wants to set up and operate

its own in-house videotex systems.

"This sale is particularly significant, because it arrived at the height of the ballyhoo in the US over the much costlier and more sophisticated approach to videotex graphics, which is being promoted by American advertising agencies."

The head of French Telecom's marketing subsidiary says the deal with Honeywell shows American business users that they do not have to pay a high price for the

type of videotex they require and need not buy a costly, intricate system.

Intelmatique conducted the negotiations which brought Honeywell together with Telcel Alcatel and Groupe Francais D'Informatique.

Combining French Teletel software and its own DPS-6 minicomputer, Honeywell is already running a videotex support centre at Schiller Park near Chicago's O'Hare Airport.

MICRO NEWS



HOLWAY... "This move will not be overlooked."

IBM cuts cost of PC by a fifth

by Keith Holder

IBM is cutting the cost of its highly successful Personal Computer by a fifth, and reducing the price of the hard disc PC XT model by 7%.

An IBM spokesman says that the exact reductions of individual components will vary. Monochrome screens, for example, will drop 25%, while keyboards will come down 5%.

The reason for the cuts, he says, is that European manufacturing costs have come down following the start of PC production at the plant in Greenock, Scotland.

PC production started there in June last year, followed by the PC XT in December. Another dedicated PC line also came online recently.

The price cuts will apply directly to IBM's customers and retail centres, but dealers will have to decide how much to pass on to their customers.

The cuts come into effect immediately and will affect the whole of Europe, though not the US.

Richard Holway, group marketing director for Hoskyns, one of the largest IBM-PC dealers, says that, in common with all other

dealers, his company will have to match the IBM retail centres prices.

He describes the move by IBM as "a brilliant piece of marketing strategy", and adds: "There will be a number of major personal computer manufacturers that will be very concerned by this announcement."

Holway says that IBM has a 30% share of the business micro market and can only improve its position. He sees the company's ability to deliver in volume as crucial in putting pressure on other manufacturers.

Lecturers succeed with Unix station

by John Riley

BUSINESS is stepping up for three Essex University computer science lecturers, who quit their jobs to set up Unixix, a company to market their own Unix workstation.

So far the company has sold 15 Motorola 68000-based Unix workstations, which are aimed at the technical market area, and is on target for 50 machines this year.

"Our plans are modest," says managing director Mike Jones, "and we are confident that we will meet our target of shipping 50 units. We are aiming at higher education and research sections of large organisations, and not trying to sell to end business users."

Jones, chairman Adrian Wheel,

and technical manager Martin Colley, spent 12 months evaluating Unix machines suitable for the university's needs and decided they could do better themselves.

"We decided to develop a new product because we wanted low cost, and we also like the idea of basing it on the S100 bus structure to give it expandability," says Jones.

The S100 gives it compatibility with small bus structured microcomputers using the CP/M operating system.

Unixix uses the Unisoft System 3 version of Unix. A "sensible" configuration of 512 Kbytes of main memory, 10 Mbytes Winchester disc drive and Unix licence costs £5,000-£5,500.

High speed memory chips are launched

by Keith Holder

HIGH speed memory chips using conventional NMOS technology have been announced by IBM and US chip maker Mostek.

Both companies presented their devices at this year's International Solid State Circuits Conference, held in San Francisco at the end of last month.

The 256Kbit Mostek chip is organised in the "industry standard" 256x1 configuration. It follows last year's release of a 32K by eight bit configured 256K device.

Access speed for the new chip is 59 nanoseconds, a two-fold improvement over the earlier device, which is already being marketed by the company. Samples of the new chip are due at the end of next month.

IBM's chip is a 64K-bit device, which works at speeds between 16 and 20 nanoseconds, at least three times faster than most other 64K memories, says a spokesman.

The improvements are attributed to new design features, including a self-timed sensing circuit and improved access buffer. The number of clocks has also been reduced.

It uses four devices per memory cell, which makes it bigger than most conventional 64K chips. But a spokesman says that the size will not be a penalty, as the chip can discharge information in 16-bit blocks. Moreover, as many computers use words of 16 or 32 bits, fewer chips will be needed to achieve the same word size, according to the spokesman.

£265,000 buys failed Digico

by John Riley

FAILED British minicomputer manufacturer Digico was bought for £265,000 last Friday by Centreway, a £75 million public conglomerate. Centreway has transferred its computer division into Digico to set up a new top tier of management for the company.

Former Burroughs manager Ian Lenagan has taken over as managing director. He will keep Digico's current range which includes its 16-bit 7800 M minicomputer and its Prince micro, and in April will add a 68000-board Unix micro developed by Centreway subsidiary, Hawk Microcomputers.

Another Centreway subsidiary, Fast Software Products, will pro-

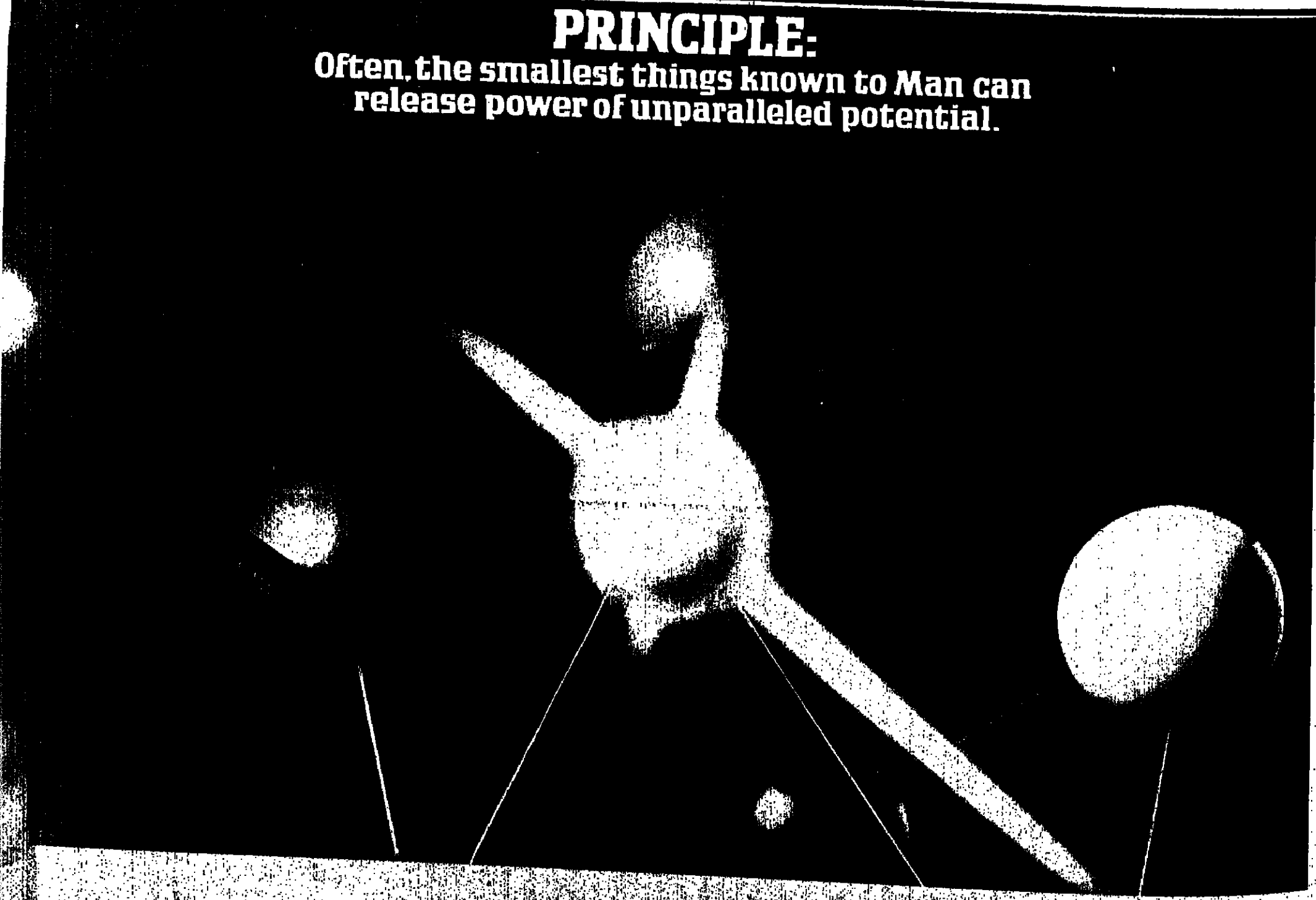
vide software for the new Digico. The purchase agreement signed between Centreway and the receiver, Peat, Marwick, Mitchell, guarantees retention of the 35 staff at Leeds.

But some of the eight Digico staff at Stevenage sacked by the receiver last week are considering taking the company's new owner to an industrial tribunal. One suggestion is that the sale was agreed before the sackings but only announced later, in which case Centreway could be liable.

Opin had been tipped to take over Digico, but managing director Mike Burden says he did not raise his bid when Centreway appeared.

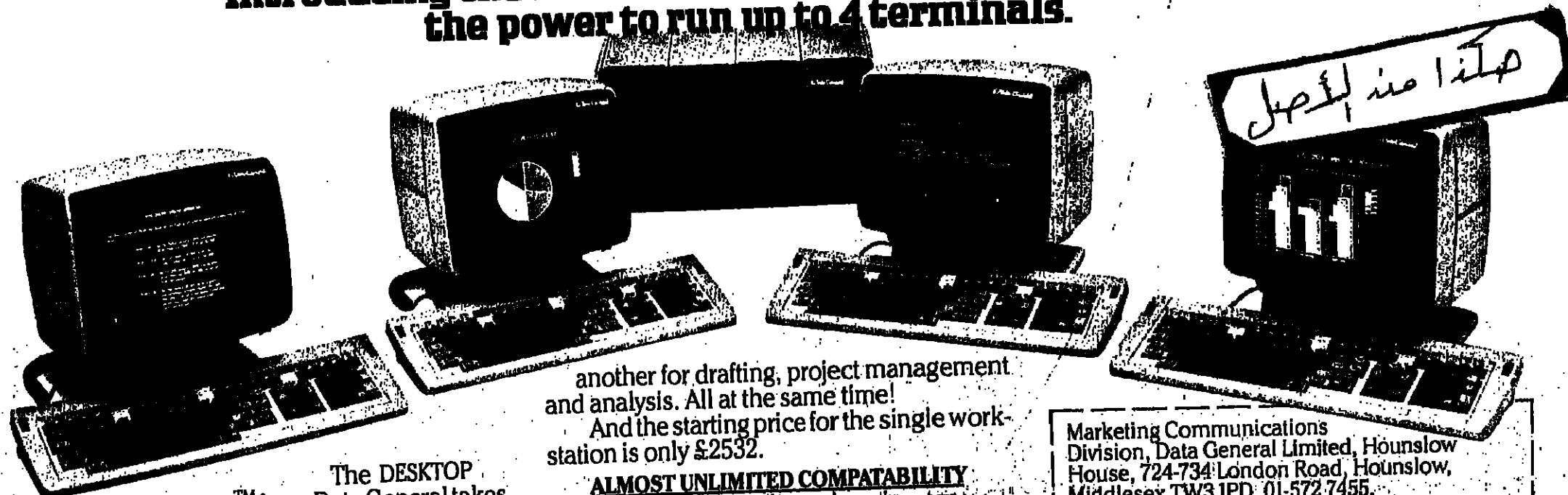
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COMPANY NEWS

United sets up a German offshoot

UNITED LEASING, the quoted IBM equipment leasing specialist, has formed a German subsidiary.

United has been trading on the Continent from its UK office for some seven years. The group moved into the US two years ago, and is now doing \$100 million annually.

United says the German company United Leasing GmbH, has a close working relationship with Boston Leasing, a division of First National Bank of Boston. The operation already boasts leases on IBM 3380 disc systems, and two 3081 Model 8 processors.

Perry Mitchell, United's chairman, says: "We're totally committed to expanding our opportunities in a very big and competitive market."

United has also set up an international brokerage division through its UK subsidiary, United Computers Limited. The division will provide a channel for re-marketing surplus equipment, and will buy kit not available from the group's existing portfolio.

United was the first independent computer leasing company to obtain a full listing on the London Stock Exchange in June 1983. It is forecasting profits of £3 million for the year ending March 31.

Mitchell predicts that the Chan-



MITCHELL... "Committed to expansion."

cellor of the Exchange's Budget next week will bring changes to leasing regulations. "For the last six months there has been hot gossip that the Chancellor will have a go at the banks. There is a possibility he will do something about capital allowances, and lowering of corporation tax could diminish the competitiveness of leasing."

But he expects this to have more effect on leasing companies associated with the clearing banks.

United's main rival, Atlantic

Bleasdale is out to raise £600,000

BLEASDALE Computer Systems is set to raise £600,000 on the London Over-The-Counter market. Licensed OTC dealer Harvard Securities is offering 2.4 million shares in the company at 25 pence.

The company was founded in 1975 by its current chairman and managing director Eddie Bleasdale. Originally it was a microcomputer consultancy, but in 1981 Bleasdale was one of the first UK companies to jump on to the Unix bandwagon with a 68000-processor based machine.

Bleasdale says that because the nature of his company has changed so dramatically since 1981 he had not considered applying for an Unlisted Securities Market listing because it would have been unlikely to qualify under the Stock Exchange's three-year trading requirement.

In 1983 the company managed pre-tax profits of just £18,000 on turnover of £557,000. Bleasdale explains that the company was still in a "development phase". He expects to sell a minimum of 170 systems this year, and has forecast

£300,000 pre-tax in the year to November 30, 1984. That would put the company on a price-earnings multiple of 9.5, given an effective tax charge of 35%.

The cash would go towards funding growth and extending the company's marketing operation. "We are looking for experienced systems integrators who can match our products to their customers."

While sales efforts have concentrated so far on traditional Unix users, such as the universities, development of commercial applications software for the operating system will help it move into professional sectors.

Bleasdale would not be drawn on the prospect of acquisitions. "We are not talking about that," he said, but confessed he would be interested if the right opportunity came along.

The offer for sale should be well subscribed, if for no other reason than that it will be one of the last opportunities to invest in a company which qualifies under the Business Expansion Scheme in the current tax year.

Leasing leaps to £702 million

TOTAL value of computer leasing equipment leased in the UK by members of the Equipment Leasing Association rose by 4% last year to £702 million, the £477 million in 1982.

The computer and office equipment category accounted for 29% of the ELA's overall business worth £2,894 million, in 1983. It moves past ships, aircraft and exploration equipment as the second biggest category behind industrial plant and machinery.

"It would be a bit much to expect the computer category to continue to grow at this rate," says Tony Mitchener, ELA chairman.

He expects that increasing volume of the leasing business in 1984 will be cancelled out by decreasing cost of hardware. But the value of processing equipment leased is expected to increase further, while the value of mainframe computers leased will continue to decline.

The ELA has 63 members, including United Leasing, Premier Computers (part of the recently listed Dataserv), and Anglo Leasing.

Mitchener says the value of leasing market has grown steadily in real terms over the last few years. But as the economy improves, the value of the leasing market will level off.

SOFTWARE FILE

ICL goes Concurrent for its new personal

by Claire Gooding
ICL has pinned its colours to the mast with Concurrent CP/M 3.1 as the native operating system for its new multi-user 16-bit personal computer. The machine is due to be launched this week.

Unlike previous ICL personal computers, the 16-bit system does not originate at Rair but is manufactured and designed entirely by ICL. The company has decided to stick with Digital Research's stick with Digital Research's operating system strategy by taking Concurrent 3.1, which is limiting its users to four screens, multi-tasking as well as a maximum of four windows in the interests of maximum performance.

Concurrent CP/M 3.1 is spearheading the attempt by Digital Research to rally the multi-user manufacturers round a common multi-tasking system.

Office Project, in which ICL is expected to be the front runner. Fourteen other manufacturers, including IBM, run the operating system, but so far only three British manufacturers, Future Technology Systems, ICL and ACT have implemented the new release, 3.1.

ICL looked at several multi-user operating systems before plumping for 3.1. Although the system can, in theory, manage up to 16 multi-user terminals and several tasks on each screen, ICL is limiting its users to four screens, multi-tasking as well as a maximum of four windows in the interests of maximum performance.

Concurrent CP/M 3.1 is spearheading the attempt by Digital Research to rally the multi-user manufacturers round a common multi-tasking system.

"The software market is estimated at \$4.5 billion over the next five years, growing at 45% a year," says Paul Bailey, Digital Research's vice-president of European operations. "It makes sense to span as broad a market as possible."

He regards Concurrent as the gateway to a whole range of applications under different operating systems, spanning eight-bit single user machines, IBM's PC-DOS and, in some cases, the coming generation of Unix-based multi-user systems based on Motorola's 68000 and Intel's 286 chips. Digital Research is heavily involved in Unix implementation with Motorola and Intel.

"The crucial job is to communicate and share resources between different processor and systems," says Bailey. "That is why Concurrent

allows eight- and 16-bit machines on its network." Bailey sees IBM's role as important but not dominant in the multi-user market, specially as other manufacturers are already endorsing Concurrent.

"What was important to us was the multi-user capability," explains John McMillan of ICL's Software Industry Support Centre. "The other advantage is that Concurrent doesn't preclude us from using other operating systems if the need arises."

One of the functions provided by Concurrent is the ability to run several PC-DOS tasks in simultaneous "windows", effectively making PC-DOS multi-user and multi-tasking well before PC-DOS originator Microsoft's own Windows product becomes available.



BAILEY... "Gateway to whole range of applications."

Broker doubts the USM route

"DON'T take your company to the Unlisted Securities Market," says Blake Simms.

Simms is a merger broker or, as he would have it, an acquisition



SIMMS... Crusading.

consultant. His company, Select Amalgamations and Investments, specialises in high tech takeovers, and has arranged six marriages, which have all brought fledgling companies under the wing of its client corporations.

Select keeps a watching brief for about 100 companies. They include the likes of Ferranti and Electronic Rentals. Its deals have seen computer supplies and maintenance group Terminal Systems Services, and Derbyshire micro distributor Midelectron, bought by Electronic Rentals, and the Vinten group acquire Trivector Systems, a software company based in Sandy.

These mergers involved an average consideration of over £1 million, and usually include later

payments linked to a performance formula.

Simms' conviction is that the Unlisted Securities Market is not automatically the best option for young companies, and can store up many problems. "Companies just don't understand the pressure or exposure they will face on the market," says Simms. Not least of these is that they are expected to live up to fancy price-earnings ratios.

So Simms is crusading to dissuade companies from taking the fashionable USM route. He says he has stolen five from the market, but admits to having lost Pericom, Microlease and Cifer among them.

Simms rejects the suggestion

that being bought is the soft option.

He says that getting into bed with an industrial partner can offer an entrepreneur far more security and more certain growth prospects than a flotation.

He claims that companies he once approached and which ignored his services and went to market, are now regretting it.

Ironically, several of those that got away (companies like Cifer and CPU) are coming back to him in a scramble to make their own strategic acquisitions.

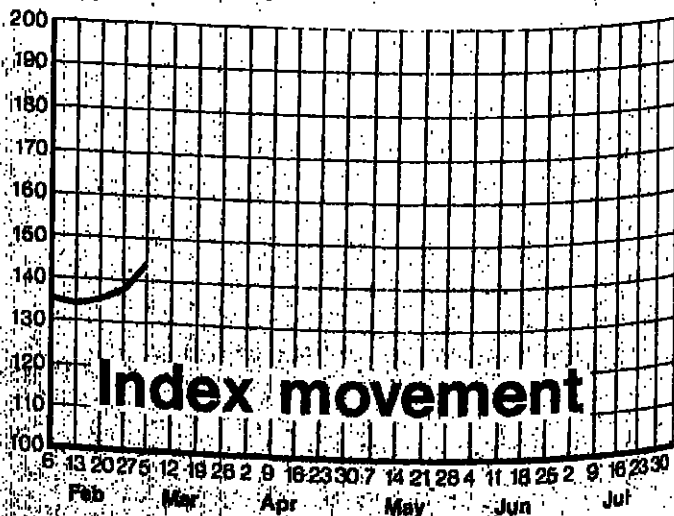
According to Simms, the deals he has done so far are "just the tip of the iceberg." And the acquisition activity on the Unlisted Securities Market in recent months

SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

Previous published index: 137.71		Index: 143.88		Change: +6.17	
1984		1984		1984	
High	Low	High	Low	High	Low
128	292	128	292	128	292
129	293	129	293	129	293
130	294	130	294	130	294
131	295	131	295	131	295
132	296	132	296	132	296
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136	300	136	300	136	300
137	301	137	301	137	301
138	302	138	302	138	302
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193	357	193	357	193	357
194	358	194	358	194	358
195	359	195	359	195	359
196	360	196	360	196	360
197	361	197	361	197	361
198	362	198	362	198	362
199	363	199	363	199	363
200	364	200	364	200	364

The table shows the closing prices in London on Friday and on America on Thursday and the change from the previous table. Highs and Lows have been adjusted where necessary. The Share Index is based on a selected list of the UK companies.



Peachtree pushes into Italy

PEACHTREE has linked with a major Italian corporation to push its way into Italy's commercial and educational software markets.

The deal is with Fininvest, a conglomerate based in Milan with tentacles into television, property, financial services and travel agencies. Its newly-hatched subsidiary, Italware, will promote Peachtree's micro applications for the business world as well as its Eduware range, currently being translated into Italian.

Fininvest's two TV channels will launch a heavy promotion campaign for Peachtree products just at the time when a new series of programmes for computing in schools is being screened there.

Peachtree educational programs are currently being translated into several European languages, and the Italian version should be completed by the end of May.

The announcement follows a major contract between Peachtree and Olivetti. The leading Italian hardware maker agreed to bundle Peachtree's applications, including spreadsheet, word processor, spelling checker and mailing list manager, with all its M20 micros running under the MS-DOS operating system from this spring.

This agreement now appears as one step in a campaign by MSA,



MOORE... "Very excited."

Peachtree's parent and the world's largest applications vendor, to get its name known in Italy, which it sees as probably the third most important country in Europe's computer industry after the UK and West Germany. Up to now it has done little business there.

Peachtree UK general manager Dick Moore, who has responsibility for Continental operations, says: "I'm very excited about the idea that a whole generation of Italian children could be growing up with our software."

Fininvest is one of Italy's top five corporations, comprising over 450 companies, with headquarters in the Milan Due office complex alongside IBM. The man behind it is Silvio Berlusconi, who has built up a group of 3,000 staff with \$500 million annual turnover.

Manman is to be a service

BP's COMPUTING arm, Scicon, is to make its manufacturing control system, Manman, available as a bureau service from April.

Previously it was only available as a free-standing package costing £100,000 or more, including the hardware. Now it is to be available for £3,000 a month.

The new approach is being taken because of reluctance among manufacturers to embark on expensive automation.

Scicon product manager Peter West says many firms have compromised with micros to handle tasks such as stock control and accounts.

"These systems are very quickly outgrown and, though cheap, their software is often inadequate. This makes a nonsense of the apparent cost-saving."

The program was written by Sandy Kurtzig of Ask Computer Systems in California in 1970. She was 23 and wrote it in her bedroom. It has since expanded to over 100,000 lines of code and is used worldwide at 600 Hewlett-Packard sites, including 45 in the UK.

These are concentrated mainly among small, high technology manufacturers. The larger and more conservative corporations have yet to take the plunge.

Police called in at software house

by Claire Gooding
POLICE have been investigating incidents in a dispute between two London software dealers. They visited the Kilburn offices of Pearl Systems and interviewed two of the managers, Steve Prentice and Marilyn Hickman.

The case centres on an applications generator called Pearl, developed in the US by Pearlsoft. Pearl Software International, based in Bournemouth, developed the product for the British market,

but was wound up with debts of £120,000 last year. Its founder, Chris Hibbert, went to work for Magitech in Kilburn, which negotiated UK distribution rights to the program.

Its head, Stuart Lishman, employed both Hickman and Prentice until recently. Hickman was company secretary and Prentice marketing manager. But they left to set up on their own with a new venture called Pearl Systems. Magitech is claiming they took with

them some of its property, making it impossible for it to carry on some of its projects.

Hickman has said her new firm has an "interim" agreement with the developer Pearlsoft to market the software.

Ron Lutz, chairman of the French distributor of the product, Technology Resources, says he has always dealt with Hickman and Prentice and will continue to. But Pearlsoft stated that Magitech was the sole UK distributor.

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Finance specialist ups its profits by 400%

CONSULTANT (Computer & Financial), the financial systems specialist quoted on the Unlisted Securities Market, has reported a four-fold increase in 1983 profits.

In the year to December 31 it saw pre-tax profits leap from £125,000 to £495,000 on turnover up 37% to £2.1 million. The results are broadly in line with market expectations, though the company's shares hardened 40 pence to 690p on the news.

The company says the improvement reflects increased sales volumes of both software and turnkey system business, and continued tightening of financial controls.

CCF established itself by designing a computer system, Fiscal, for stockbrokers A. J. Bekhor, and that is still its major earner. It recently won a large order from Phillips & Drew.

The company also reports considerable interest in its Times Investment management system.

In 1983 CCF opened a Hong Kong office to sell its systems in the Far East and Australasia, and has quickly recouped that invest-

ment. It says the Hong Kong operation contributed £100,000 to profits in 1983.

According to the directors, this year the company will seek to broaden its interests, as it did last year with the incorporation of CCF Leasing. It will look to new geographical areas and may consider selling its software through agents overseas on a royalty basis.

CCF was the best performing computer-related company on the Unlisted Securities Market in 1983. Its share appreciated 270% in the year. But at 690p, the company is left on a fully taxed price-earnings ratio of over 20. Although analysts agree that with the City flush after such a good year in 1983, and the company is in a sector with enormous potential - its shares look modestly overpriced against competitors, Rolle & Nolan, for example, is on a peg of 13.

Brokers Henry Cooke, Lumsden look for £700,000 pre-tax in the current fiscal.

CCF has also announced a share split and a four-for-one share issue in the hope of increasing the marketability of its stock.

Company News is compiled by Dave Madden

Software file is compiled by George Black

From software novice to guru in eight years

JEAN YATES has gone from novice to guru in eight years - probably a record. But then records are set and broken often by people in California, and by people in software, that this may not be the most remarkable thing about her.

She is known as one of the world's leading experts on the Unix operating system, though her claim to the title rests on having founded a small market research company employing 25 people. Her reports on the industry are bought and studied by AT&T, IBM, DEC, Hewlett-Packard - you name them.

by George Black

"My data is very reliable and that's why they trust me," she says, "but I hope people aren't treating everything I say as gospel truth. I do throw out a lot of ideas at people just to see how they go down."

While she was staying at the Inn on the Park during her recent visit to London, one of her American clients rang her in the middle of the night and kept her talking for three hours.

What about? "Oh, they wanted to know whether, when they opened their fourteenth factory in 1987, that would up their revenue by 15% or 30% or something like that. I ended up getting only two hours' sleep."

It doesn't show. Her presentation to the Unix conference was energetic and stimulating and controversial. Probably many of her listeners would have been surprised to learn that her acquaintance with computing stretches back only to December 24, 1978.

"I bought myself an Apple II for Christmas."

The following year she worked for six months selling first generation micros at Computerland in San Francisco as a way into the



YATES... "I like to be out on the edge."

industry. In 1979, she started to go around saying: "Unix is gonna be big. Very big. We're talking about maybe \$9 billion of hardware and software in 1986."

She was told in no uncertain terms that she was wrong. But she went on saying it.

Gradually people began to think there might be something in what she was saying after all. So she set up a company of her own to tell them why she was saying it - plus a lot of other things too. Jean Yates has a lot to say about the computer industry.

There are restrictions, though. She repeats: "I'm under a non-disclosure agreement with IBM."

as if she had just been told by them to write it out 50 times - which she insists she has not been. As a consultant to both IBM and AT&T she is tugged between the two biggest forces in the world of new technology, and a single step out of line could cost her her career. Or at least, this career.

She does not intend to become tied to Unix. "I'm glad I was right about it and I'd like to hear from some of those who said I was wrong. But I'm gonna start looking for something else now. I like to be out on the edge."

This is followed by a statement of what appears to be the Yates philosophy: "If there aren't a lot of

people telling you you're doing it all wrong, you aren't doing it right."

So what will it be next? Genetic engineering? Biotechnology?

"I don't know. Maybe. I'd like to get into real consumer research, user likes and dislikes. I think that will be my next step."

Her firm, Yates Ventures, has about 100 customers now, including most of the main hardware manufacturers and a number of well-known names in the software world.

Considering her flamboyant character and the outspokenness of her views, this is quite an achievement.

DOWNTIME

Bum's back and all is well

COMPUTER people say some pretty daft things sometimes, but you'd have to go a long way to beat the latest utterance of Rod Canion, president of Houston, Texas-based Compaq Computers.

"Bum's back, and we couldn't be happier," said Canion.

This can be partly explained by the choice of "Bum" Phillips, described as one of the "winningest" coaches in American football, to open a computer show at which Compaq is exhibiting.

Bum himself can also come out with the occasional gem: "I may be a country boy, but I didn't get to the top of my trade without keeping up with the times. We couldn't run the modern football team without computers. Life is just too complex."

What a dull game soccer is by comparison. All our lot say on *Match of the Day* is "Well John, I hit the ball and there it was in the back of the net." Nary a mention of a ZX81.

Damned lies and white lies

SITTING in waiting rooms can be a boring pastime, particularly if there is no copy of the latest *Computer Weekly* on the coffee table. If, however, one keeps one's ears open in rabbit-like attentiveness, interesting little snippets can come one's way.

So it happened to me last week as I sat waiting to meet the managing director of one of our promising young microcomputer companies.

One of the company directors stopped at reception on his way out of the office and told the receptionist that he was popping out for a few hours to bank some money and do a few chores. "And by the way," he said, "if Mr Bloggs shows up to pick up what he's leaving, tell him we are having a little problem. He can't quite get the printer interface right. Apologise for me not being here, but tell him I was called out urgently."

Tell him in fact that I am out

dealing with his problem. I'm out, of course, but he's not to know. It is.



Reduce stress.

A damaging peripheral?

THERE can't be many products on the market which are totally compatible with every machine from a ZX81 to a 286, but Brussels-based World Trade in Computers (WTC) is importing just such a product.

Aimed at reducing user stress, the Bit Banger enables you to go back at the computer with little or no risk of damage. "Striking a computer during a moment of frustration can relieve tension and allow the operator a fresh chance to try again with a different psychological approach," says Gordon Smith, president.

Bit Banger is a foam-headed mallet. I illustrate the *Computer Weekly* version undergoing tests on our Behemoth 9000 mainframe.

State-of-the-art?

YOU know that state-of-the-art, system-of-the-future, most-advanced-computer-known-to-man thing, the DEC PDP-11, which the Pentagon is so anxious not to fall into Kremlin hands or we are all doomed? Well, according to Professor Martin Klemp of Cardiff University, its architecture is "obsolete". Which of them is right?

Answers on a postcard please to Caspar Weinberger, care of...

Chad

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, March 8, 1984

We must solve this skills shortage

WEEK by week the evidence that Britain is falling behind because of a shortage of skilled personnel continues to accumulate.

While demand for electronics engineering graduates, trained programmers, analysts and other data processing staff grows, the cuts inflicted on higher education ensure that the demand will not be met.

The latest Policy Studies Institute (PSI) study, based on a survey of 1,200 UK factories, states: "The lack of specialist microelectronics expertise was the difficulty mentioned spontaneously more than any other as a major impediment to the introduction of microelectronics."

Last week, the Computing Services Association met in Bournemouth, and a constant theme was the shortage of trained staff for key roles in small and medium-sized firms. The managing director of Pactel spoke of the "vicious circle of not having time to train the trainees who would give us the productivity to give us more time".

The Engineering Council was also heard last week. It called for a £200 million switch in resources to ensure an adequate supply of properly educated and trained engineers. It says the shortage has occurred because economic pressures have forced industry to reduce expenditure on training.

That view is echoed by the PSI report, which says a large number of companies rely on outside recruitment.

There was one small glimmer of hope. A report published on Monday by the Institute of Manpower Studies, which evaluates the government's "new blood" initiative to increase post-graduate courses in information technology, finds that it will go some way towards helping firms overcome existing shortages of information technology manpower. But the numbers are small - only 200 in 1983 rising to 1,000 in 1984.

There is a growing consensus as to the nature of the problem, which rests with the two separate issues of training and education. There are differences as to where the solution lies: the Engineering Council's recommendation to re-allocate resources from one sector of education to another does not seem to us to achieve anything better than make do with a bad system.

Consensus, however, is the first step towards problem solving. The skills shortage which faces our industry and the country as a whole is a subject we will return to often. And an industry as clever as ours should get its heads together and come up with an expert solution.

Small fry feel the heat

"ENOUGH is enough" seems to be the message from IBM to the world's micro makers.

The 20% price cut on its PC announced in the UK last week is further evidence that IBM is getting tough with the small fry. Legal actions against Corona, Eagle and Handwell in the US were instigated by IBM when the three companies introduced products which IBM considered to be rather too similar (and cheaper) than its own.

The official line from IBM for the 20% cut (and the 7% reduction on the XT) is that production at Greenock, where the PC and XT are made, is now running smoothly enough to bring manufacturing costs down, and IBM wishes to pass on the savings to its customers.

It would seem more likely, however, that the aim of the men from Armonk is to initiate a price war against the ever-growing number of IBM-like micros on the market. There can be only one winner of such a contest now that the IBM machinery is well and truly rolling.

Having shifted around 30,000 PCs in the UK at the full price, the company has now chopped a fifth off the price tag to open up the market at the bottom end. Apparently IBM has sold as many machines as possible at the full price, and has instituted a price cut before sales begin to level off, to keep the bandwagon rolling.

One thing is, however, certain: micro companies that want to compete with IBM should ensure that they offer more than a better price.

1984 and all that...

THIS week's example of the strange things people say about computers was sent in by B. Twissell, of Coventry, who writes: "Imagine the simplicity of programming by just one touch, and the knowledge that the computer will never let you make a mistake."

Advert for computer-controlled washing machine.

LETTERS

Software prototyping is not just American

I WAS most pleased to see significant space given to software prototyping (Guy Thompson, *Computer Weekly*, February 16), a technique by no means limited to the US. I would like to supplement Thompson's excellent article by pointing out another major factor in the rise of those methods.

The availability of sophisticated but easy-to-use data networking products means that the applications development staff must now accept that a wide range of casual users, both locally and throughout organisations, will wish to have access to their programs at some level.

These users, who may well be corporate executives, will demand simple command functions and screen formats that are readily intelligible.

Coupled with the falling cost of raw computer power, it may thus be more cost-effective to optimise the presentation of the applications to the user than to seek absolute efficiency at the CPU.

To conclude, prototyping is

therefore the natural counterpart to the increasing dominance of telecommunications in the computer area.

TONY RICHARDS
Marketing Communications Manager

Computer and Systems Engineering
Watford.

Equal opportunities

ROBIN WARD reports (*Computer Weekly*, February 16) on the support given by the ROC to the Davidson Centre in its project for interesting girls in the opportunities available to them in information technology.

From personal experience, while I would endorse fully the points made in the last paragraph of Ward's letter in which attention is drawn to the need to raise the level of awareness among parents and teachers, it is becoming increasingly apparent that outdated attitudes towards women's role in society, and therefore at work, are still widely held both in the home and in many of our schools.

It should be recognised also that the basic skills required for working with the new technology are quickly acquired and that for boys and girls it need not

necessarily be assumed that a professional qualification is the only key to a worthwhile and exciting job in this field.

DOROTHY ROSS
Manchester.

XXX 9XX lives on

I'M sorry, Mr Smith (*Computer Weekly*, March 1), but Mr Vjestra was right, XXX 9XX still exists.

Yes, there was a good reason for changing NOR (Norwich) in 1974. Not only was the second part of the code not 9XX but the remainder of Norfolk could not be added until the code was changed.

But GIR (National Giro Centre) and NPT (the centre of Newport, Gwent) both still exist and presumably the same incentive to change them doesn't exist.

So XXX 9XX lives on.

C. G. PEACHEY

Hemel Hempstead

Geisco electronic mail users

MAY I point out an error in your March 1 report on the NCC Electronic Mail survey?

The Geisco Quik-Com system has 20,000 users and not 200 as shown in your report. Paul Wilson's NCC study *Commercial*

Midwich got the cash

IT was with considerable concern that I read the headline given to your report (February 16) which stated that "Acorn gets factory cash" in respect of the financial package arranged by my company, Midwich Computers.

While it is true that the success we have had with Acorn's BBC Micro has contributed to our rapid expansion, the vote of confidence Midwich has been given by the new investment is not connected with Acorn in any way.

DAVID WATSON
Managing Director

Midwich Computers
Ricklinghall
Suffolk.

The Editor welcomes letters commenting on subjects published in *Computer Weekly*, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

Electronic Mailbox Systems correctly states the 20,000 figure.

ANTHONY R. KENCH
Managing Director

Geisco Limited
Kingston-upon-Thames
Surrey.

PLATFORM

Validation trend comes to UK

IN the late 1970s the US Department of Health was spending \$12 million a year on leasing hardware but was spending \$50 million a year on Cobol source code conversion due to incompatibilities between various compilers. It is believed that these exorbitant costs incurred on software conversion, compared to hardware cost, also apply to Fortran programs.

One of the major problems facing any computing installation when it decides to change its computer is altering the current program source code to compile on the new machine. Since 1968 there has been a standard for the programming language Fortran, yet the way in which compilers treated the source code varied to such an extent that program portability was becoming a joke.

In an effort to reduce conversion costs, the US government introduced a scheme to validate compilers against their respective

standards and then stopped federal agencies purchasing a compiler unless it had been validated. This approach has been used in the US for several years, while in the UK a Cobol compiler validation service was set up in early 1983 and a similar service for Fortran in October 1983.

Both services have been introduced in the UK by the National Computing Centre in close liaison with the Federal Software Testing Centre (FSTC), which is responsible for validations carried out in the US. As NCC uses the same procedures and test suites as the Americans the results of validations in the UK are recognised in the US, enabling compilers validated in the UK to be eligible for procurement by federal agencies in the US.

This validation technique for Fortran consists of running up to 272 programs with each program having tests for the conformance of

individual elements of the language to the ANSI X3.9-1978 Fortran standard. These tests are collectively known as the Fortran Compiler Validation Suite (FCVS).

Once these tests have been run the results are analysed and drawn up as a Validation Summary Report (VSR).

When validation became established in the US opportunities arose from which both users and implementors could derive real benefits. The VSR could point out possible incompatibilities which the compiler had with the standard, and genuine errors that the implementors may have failed to detect. It became possible for a programmer to write programs to the language standard while avoiding the problem areas defined in the VSR.

This resulted in program development costs being considerably reduced as the programmer

was no longer struggling with previously undefined, defective areas in the compiler. Training costs could now be reduced as knowledge of the language determined the content of the source code, not a particular compiler which in turn led to program portability.

A machine change no longer necessitated large source code changes, providing both the old and the new machines had their respective compilers validated. With users now free to choose from a wide variety of manufacturers not only financial savings were made but hardware decisions could be based on suitability, not compatibility.

Many implementors realised the benefits of validation as soon as they were given such a comprehensive test suite for a fraction of the cost of developing their own.

The validation report could be used as a marketing aid giving



prospective buyers an independent assessment of product quality.

The move towards a more positive approach to standards in the UK has resulted in several British companies expressing interest in NCC's validation service. One British company has already completed its validation and the VSR is currently available from NCC. A further three companies are preparing themselves for formal validation and will almost certainly be validated before the year-end.

The Central Computer and Telecommunications Agency has now included compiler validation into its procurement procedures and many users are becoming aware of the importance of programming language standards. You may be one of the fortunate DP installations that already has a validated compiler. On the other hand, you may not. If so changing your source code could be more expensive than new hardware.

David Littlewood

David Littlewood works in the Standards Division of the National Computing Centre.

Liveware File

by Don



10 YEARS AGO

FROM *COMPUTER WEEKLY* OF MARCH 7, 1974: Reay Adkins, director of the Central Computer Agency, said he hoped that, despite cuts in government spending, it would be possible to keep expenditure within the computer services industry running at £2.5 million during 1974/75.

The only successful computer candidate in the February General Election was Barry Henderson (Con.), who worked for Unilever at Livingston. The Xerox 550 and 560 systems were released in the UK by Rank Xerox Data Systems. The number of computers in US government departments rose from 6,731 to 7,149 between July 1972 and June 1973.

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MICROQUEST

Calling all young micro innovators

Industry minister John Butcher talks to Nuala Moran about microelectronics and Microquest, a bright competition to involve young people in technology

NEW ideas from young people on microelectronics applications will be the lifeblood of the future and Microquest is an annual competition designed to find them. Industry Minister John Butcher is a strong supporter of the contest, and he says: "It encourages young people to think creatively about the potential of microelectronics in industry."

"It is vital that young people coming into industry should be aware of the impact and potential of the technology. Microquest is excellent for developing that awareness."

Butcher also stresses the importance of microelectronics to industry. "Microelectronics is a basic industrial tool. It gives scope for the development of new or improved products and processes in all sectors of manufacturing. It makes possible increased productivity, better, cheaper and more reliable products. Firms not

Butcher says he is very pleased with what MAP has done so far. "We are making progress on all fronts. In terms of raising awareness of the potential of the technology, some 300,000 people have attended MAP awareness activities, such as seminars and workshops."

"On training, the number of places annually on short courses is running at about 30,000, compared with only 2,500 in 1978. Over 4,400 MAPCON feasibility studies have been offered support, and some 3,200 completed."

"Finally, over 1,200 applications for project development support have been approved, of which nearly 500 are complete."

"A PSI survey carried out in 1981 showed that 30% of the manufacturing industry was using or planning to use microelectronics. The latest PSI survey shows a substantial increase to nearly 50%, which is good progress."

definite evidence that it is MAP which is getting people to use microelectronics.

"MAP's usefulness is borne out by industrial views recorded in the PSI study, and by the continuing demand for MAP assistance. The 1,227 applications for project support approved so far have a total value of £200 millions, a significant contribution to the modernisation of the UK manufacturing industry," he says.

DoTI introduced MAP because of a concern that British companies were lagging behind their international competitors in introducing new technology.

"We have initiated comparative studies in France and Germany to

give us a clearer picture, but even if they show we are edging ahead, we must ensure that UK industry is in a position to shape technological developments."

Butcher dismisses criticism that shortcomings in the MAPCON feasibility studies have limited the progress that might have been made by MAP, because of inadequate support of projects.

"For those potential users who were a little fearful of getting involved in new technology, MAPCON has provided a painless way of testing the water. It has brought new technology to those industries that have been resisting the blandishments of information technology companies in the UK."

BUTCHER... "Microquest is excellent for developing awareness."



How you can win £50

COMPUTER WEEKLY is joining with the Department of Trade and Industry and Williams and Glyn's Bank to promote the Microelectronics Application Project (MAP) — the government scheme to encourage British industry to use microelectronics in products and processes.

A special £50 Computer Weekly prize will be awarded to the applicant who submits the best entry to the Microquest competition each month up to the end of June.

Microquest is an annual competition with a £1,000 first prize, to find innovative ideas from young people between the ages of 16 and 21 on how to use microelectronics in industry.

Entrants to Microquest must submit a 2,500 word report which identifies a new use for microelectronics and explains how it could be implemented. The idea is to produce applications that will improve and develop original processes or products, and the organisers stress that the applications must be practical and therefore realistic in terms of cost.

It is hoped that employers

will take a keen interest in the projects that are submitted, and all applications must be approved by the employer. Senior people who read Computer Weekly are encouraged to sponsor young people in their departments.

All entries will be studied by DoTI's team at the Warren Springs Laboratory, which is responsible for assessing applications for MAP grants. Entries for the Microquest can be obtained from any Williams and Glyn's Bank or Royal Bank of Scotland branch, or the Department of Trade and Industry at Microquest, MAP Centre, Freeport, Room 514, 29 Broad Street, London W1E 5BR.

All entries will go in the monthly Computer Weekly special competition as well as the main competition.

Geoffrey Field, marketing manager of Williams and Glyn's Bank, explains that the bank decided to take part in sponsoring the competition because: "MAP is trying to attract small and medium-sized businesses to take up its grants, and that fits in with our customer profile."

exploiting it will simply lose the competitive race."

Microelectronics Application Project (MAP) is DoTI's scheme to encourage the use of microprocessors by British industry in its products and processes. It was set up in 1978 in response to widespread concern that the UK was lagging behind its international competitors in recognising the significance and potential of microelectronics.

MAP had an initial budget of £55 million and another £30 million was added in 1982.

Speaking on the future of MAP, Butcher says that £18 million of the £30 million promised for the scheme in November 1982 has been spent. This brings the sum spent on MAP up to £73m.

"It is too early to say if any more money will be allocated. There is a long way to go before the current allocation runs out. We will be considering this in the light of the 1983 Policy Studies Institute (PSI) report on microelectronics in British industry, published last week." (See front page.)

Butcher adds: "The impact has been dramatic and considerable, and the figures speak for themselves. But they also confirm that there is a lot still to be done; many smaller firms are not yet persuaded of the relevance of microelectronics."

"This reinforces the need to encourage engineers and technicians coming into the industry to be aware of the potential, and that's why we're supporting Microquest."

According to Butcher, there is

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PROGRAMMER TO
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Peter Jones has joined NEC with responsibility for Midlands and Northern dealer sales and to recruit and establish new dealer outlets. He was previously area sales manager for Thame Systems, NEC's largest distributor of peripherals. Richard Sharp becomes NEC's dealer sales executive for the City, East Anglia and the Northern Home counties, having previously been a sales engineer with Nuclear Data Inc. selling real time minicomputers to the nuclear power industry. Peter Diamond has been appointed NEC's dealer support executive. A New Zealander, he came to the UK in 1978.

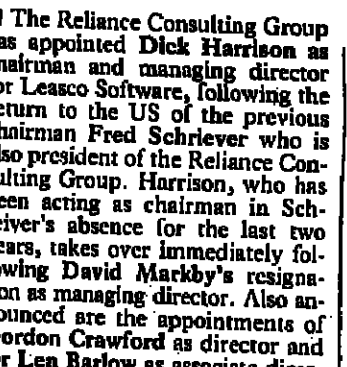
SK Computer Systems has made two appointments in the Systems Division. Clive Richards, who becomes manager, was previously a field service marketing executive. David Dalton is appointed Southern area sales executive, with responsibility for the company's operation in Wales and South-west England.



Geac Computers Europe announces the appointment of John Dillworth (above) as general manager Northern Europe. He will manage Geac's operations in the Benelux and Scandinavian countries from Geac's offices in Amsterdam. Dillworth was previously European marketing manager for Information Processing Products. David Thomas, Geac Computers Europe group commercial director, will be responsible for European product support activities in addition to his current duties.

Neville Barber has been appointed product manager at Peachtree Software International, with responsibility for the Peachtree Basic Accounting System (PBAS). He moved to Peachtree from MSA where he was business consultant. Carl Chilly has been appointed manager of the systems engineering group at Peachtree Software International. His previous experience has been chiefly with software. At Rank Xerox he was senior software engineer on Ethernet Systems.

R&H Systems has appointed Alan Dunkley as sales manager. He comes from Gould SEL where he was marketing manager for industrial automation.



Chris James (above) is the new managing director of Reliance Systems, the spearhead of a GEC thrust into information technology marketing in 1984. He comes from STC Business Systems where he was communications systems director with responsibility for STC's approach to office automation.

The Reliance Consulting Group has appointed Dick Harrison as chairman and managing director for Leasco Software, following the return to the US of the previous chairman Fred Schriever who is also president of the Reliance Consulting Group. Harrison, who has been acting as chairman in Schriever's absence for the last two years, takes over immediately following David Mackay's resignation as managing director. Also announced are the appointments of Gordon Crawford as director and Dr Lea Barlow as associate director. Harrison's other appointments include director and vice-president of the Reliance Consulting Group, financial director of the Tubocore Group and chairman and managing director of Moody Tottrup International.

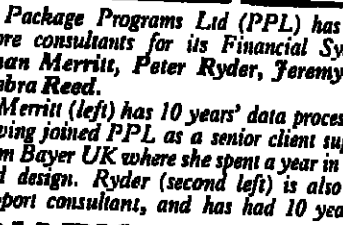
Innace has appointed Richard Draper as new product marketing manager. He has worked in this field for Control Dataset, Magnetic Media and CDC.



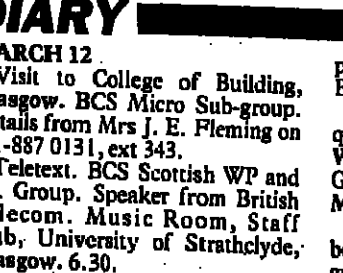
Terry Shurwood (above) has been appointed to the board of Oric Products International at Ascot. He joins Oric as sales and marketing director, taking over from Peter Harding who assumes responsibility for new vertical markets including videodata. Shurwood is a former national account manager for IIT, general sales manager for Ingersoll Electronics and, most recently, sales and marketing director for Mattel Electronics (UK).



John Preston has been appointed marketing consultant, Datasolve Information Services. Previously, he was consultant in marketing for Whitehead Mann, and had held marketing and promotional positions at Calcomp, Intel and ICL.



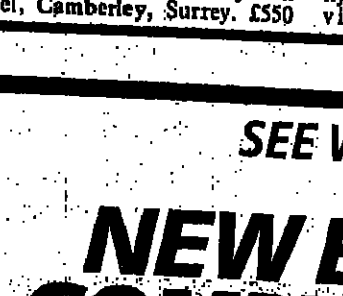
Advanced Data Communications has appointed Andrew Houldsworth as sales executive for London and the South. He was previously with A. M. Vartypier as a market support representative.



Ferranti Cetec Graphic, the Scottish-based CAD/CAM arm of the Ferranti electronics group, has appointed Tor-Hugo Torstensen as publicity and promotions executive. Norwegian born, he joins from Ingersoll Rand in Manchester where he was promotions manager, international operations.



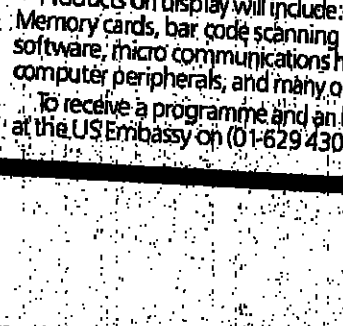
Feshon Systems has appointed Paul Streets as a sales executive with special responsibilities for Data Control system sales to banking and related industries. Streets was previously with Bankers Trust in the City. His earlier experience was with Tesco, Citibank Savings and NatWest.



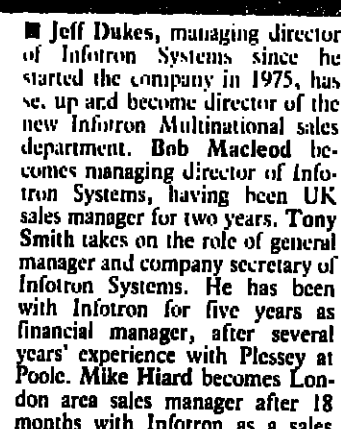
Michael Young has been appointed managing director for Systematics International Microsystems. He joined the company as UK marketing manager in 1980. Previous posts include managing director of Sentinel Computers (Europe), and marketing manager for Computerworld Boston.



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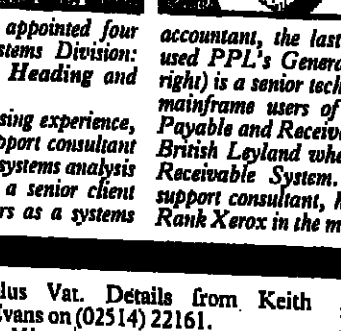
Jeff Dukes, managing director of Infotron Systems since he started the company in 1975, has set up and become director of the new Infotron Multinational sales department. Bob Macleod becomes managing director of Infotron Systems, having been UK sales manager for two years. Tony Smith takes on the role of general manager and company secretary of Infotron Systems. He has been with Infotron for five years as financial manager, after several years' experience with Plessey at Poole. Mike Hard becomes London area sales manager after 18 months with Infotron as a sales executive, and Ted Richardson, who joined Infotron Systems as engineering manager three years ago, after 11 years with British Telecom, now takes over as European marketing manager.



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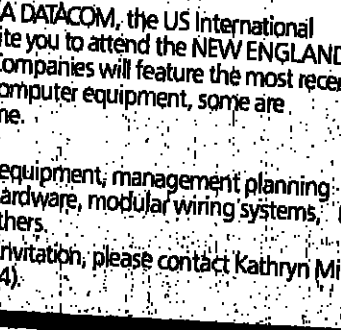
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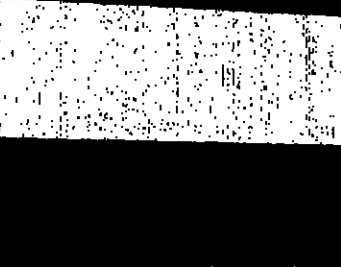
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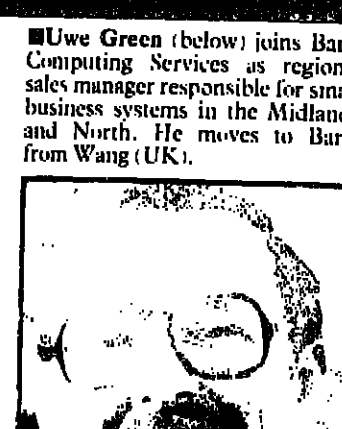
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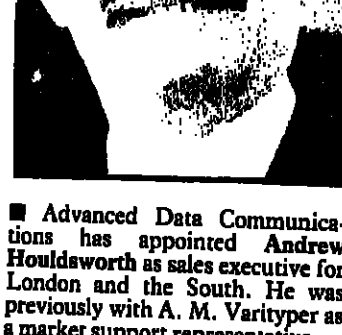
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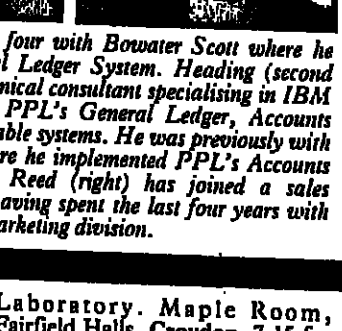
Uwe Green (below) joins Baric Computing Services as regional sales manager responsible for small business systems in the Midlands and North. He moves to Baric from Wang (UK).



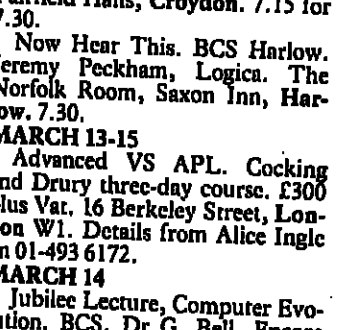
Alan Richardson (above) has been appointed director, special projects, of SCL (Systems Consultants Limited), a computer bureau and service company. He joins from Systemshare, a business unit comprising 40 computer specialists within NBI-Peebles where he was managing director with responsibility for providing a variety of computer services.



Ferranti Cetec Graphic, the Scottish-based CAD/CAM arm of the Ferranti electronics group, has appointed Tor-Hugo Torstensen as publicity and promotions executive. Norwegian born, he joins from Ingersoll Rand in Manchester where he was promotions manager, international operations.



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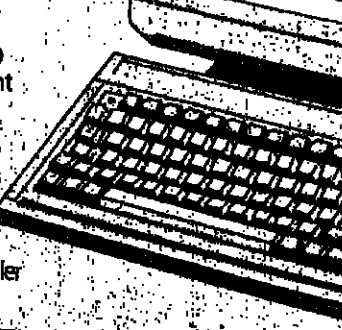
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PROJECT MANAGEMENT



Communication between expert and user is essential.

Use your users

THE ultimate success of a computer project depends on the users. It is the users who should finally accept (or reject) the system.

Even more importantly, it is the users who either oil the wheels of the system, so that it runs smoothly, or put spanners in the works so that it grinds to a halt.

The analysts have plenty of discussions with users during the investigation phase of a project. It is up to the project manager to ensure that communication is maintained in the time between conception and birth of the system.

This may reveal needs for changes (the bane of the system developer's life) earlier than would otherwise be the case, but at least these problems are tackled sooner than they would otherwise be. The big advantage is that the users remain involved, and so improve the chance of the project being successful.

Of course, the users of a computer system range from the person who types in the data to the managing director, who uses the reports to keep staff on their toes. Not all of these people will be over-enthusiastic about the system, or see its relevance with much clarity.

Nonetheless, the overall success of the project still depends on them, so a good selling job is well worth doing.

Computer people often consider themselves to be highly intelligent technocrats (very occasionally this has some justification). It is easy for such people to think they know what is best for the users. After all, they argue, what can the fuddy-duddy old users, who have used the same methods for the past five years, have to contribute to this new clever system?

Unfortunately, brainy technocrats usually forget three important points. Firstly, lack of knowledge of bits and bytes most certainly does not imply lack of intelligence. Secondly, experienced users have probably tried several ways of improving methods and have found that the current approach is the best, bearing in mind all practical problems that arise. The users are therefore well informed about what is required and what will work.

Lastly, and perhaps most importantly, it is the users who accept or reject the system and make it a success or otherwise.

The project manager and team should be building up users' confidence throughout the development period. To do this they must communicate in language they understand. They must eschew the use

We finish our two-part series on how to manage projects successfully

Just keep talking

COMMUNICATIONS is a term that covers the written and spoken communications between individuals, as well as the transfer of data between computer and terminal and vice versa. In this article I am not concerned with bits, bytes and line protocols — the only relevant protocol is that of politeness.

The ability of people to communicate has been one of the most important factors in reaching our current level of civilisation. Similarly, poor communications have been the cause of many tragedies, ranging from major ones such as *The Charge of the Light Brigade*, to minor ones such as a poorly specified sales ledger system.

The apocryphal story of the message that was sent from the war front, saying "Send reinforcements — going to advance", and received as "Send three and fourpence — going to a dance", tells us more than how cheap it was to have a good time in those days. It shows that communication is a two-way process.

Both sender and receiver of the message thought they were communicating, but they were not. What can be done to ensure that the correct message gets through? One way is to send information back, so that the originator can tell that the proper meaning has been received. More than a mere acknowledgment is needed. An acknowledgment is passive and only signifies that the recipient has received some information.

A more explicit response — for example, "Where is the dance?" — would have highlighted the misunderstanding, before pocket money was dispatched to the attacking troops!

Communication between computer expert and the user is important throughout a project. It is particularly easy for the project manager who is primarily a computer person to think of the project in terms of analysis or programming only, whereas these are parts of a larger project that includes the end-user as well.

It is no good the system being written on time, if the system test

data, which should be the user's responsibility, is not ready, or if the user staff are not trained. It is only by regular communication with everyone concerned that the project manager can ensure the overall success of the project.

One reason for poor communications between computer people and users is the fact that they may not be on the same wavelength. Sometimes this is just a matter of the jargon used. Those of us who have worked with computers for some time find the line between English and computer jargon hard to define. Consequently we occasionally use words in everyday speech that only a computer huff would understand.

As well as the language used, a number of other factors affect the quality of communications. For example, privacy and an unhurried approach are needed when appraising or counselling staff. Personal feelings are also extremely important.

In one case I know the only time the boss seemed to find out unpa-

latable facts was at monthly progress meetings attended by an outside supplier. Apart from being a poor way to run things, the ensuing explosion from the boss was embarrassing for all present. In my view the blame for this should be laid mainly at the door of the overbearing boss, rather than at that of the fearful employee.

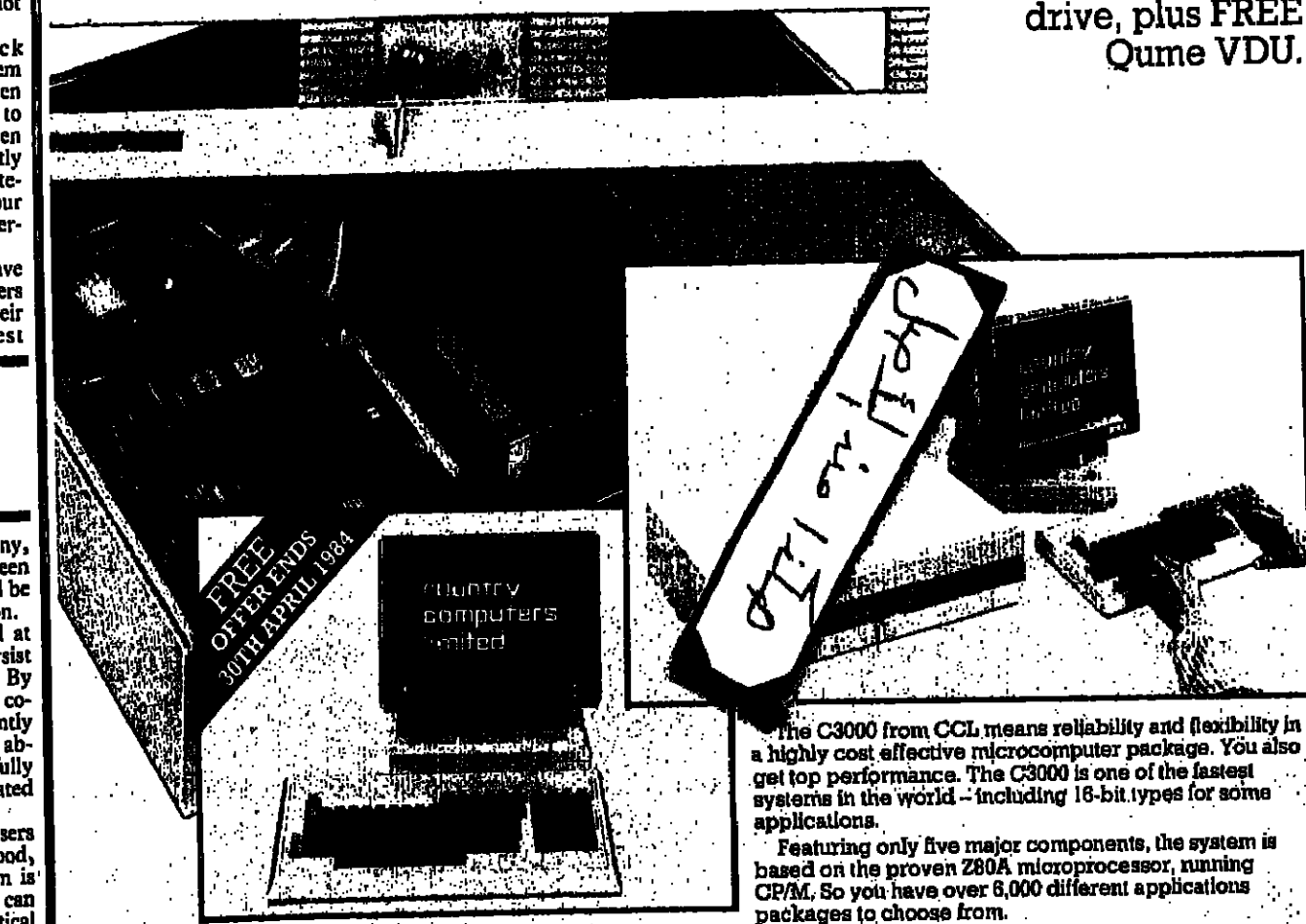
To encourage communications, therefore, the manager must be accessible, approachable and sympathetic. However, he or she must also ask the right questions and be tenacious and forthright enough to ensure that truthful answers are obtained.

While we can do all we can to ensure good communications, the fact remains that people don't listen all the time, and don't remember everything that is said. It is therefore desirable to agree important points in writing.

This has the advantage of forcing people to think carefully, as they are generally more cautious when being asked to commit something to paper.

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How to go about choosing

This article is an amended extract from Granada Books' *Database Management Systems*, edited by R. A. Frost

WHEN given responsibility for the first time for choosing (or what is more likely, leading the project to choose) a database management system, you can be excused for initial feelings of worry, then after you have had time to think about it, terror! (Definition of "confidence": the feeling you have when you don't really know what is going on!)

There are many different situations and no one set of rules is applicable everywhere, but an attempt has been made here to describe an approach which should be generally applicable.

The task of choosing a DBMS could be thought of as a fairly academic exercise, involving the matching of technical requirements against available features. It is not that simple, however, and in the real world, the particular circumstances and constraints of each situation are key factors in the whole process.

The situation where no DBMS software currently exists and a wide choice is available would seem ideal (although this has its own drawbacks, such as learning factors still to be incurred and sometimes unreasonably high expectations) but more often than not there are constraints in existence.

For example, the boss or some influential colleagues may have strong views on the ideal solution. They may have similarly strong views on DBMSs to avoid like the plague, or they might think the whole exercise is unnecessary and a waste of the company's time and money.

Specific, high priority applications or certain users may be driving the project, and their DBMS requirements may not be consistent with broader aspects of the company's longer term DBMS needs.

There may be a need to link any new DBMSs or other software —

The time spent sorting out any misunderstanding or disagreement is nothing compared to the time lost later if this is not done

the choice may not be as wide as it would first seem.

Recognition of the circumstances and real constraints is fundamental and it is vital to clarify and document the objectives and scope early on.

When one is participating in (and particularly leading) a DBMS requirement study, it is essential that there is a clear understanding of:

- What the objectives are:
 - to assess the need for a DBMS?
 - to recommend most suitable DBMS?
 - What tasks are involved:
 - visiting vendors and other DBMS users
 - arranging presentations/benchmarks
 - involving other DP staff in the study
 - The scope which exists for the choice of database:
 - must it be a proprietary system?
 - must it be currently in use?
 - can it be supplied by a third party?
 - The timescales and resources allowed:
 - is there a critical target date linked to certain system developments?
 - can external consultancy be used?
 - is time allowed to go on courses or visit other users?
 - what are the capital cost constraints?
- These objectives and scope should be documented in the terms of reference for the study.

There are many tasks to be carried out and a documented plan for the evaluation and selection study is vital.

Terms of reference form the basis from which a list of tasks should be drawn up.

Where others are involved, it is important to identify early on what information they require, eg DP project leaders and managers may be asked for their database requirements in questionnaire forms, and/or individual or group discussions may be held. A consensus of agreement may be needed on such things before DBMS vendors can be contacted.

Consideration should be given to how the list of contenders will be arrived at — what sources of information will be used? (Datapro, Auerbach, etc). If these are not available, how will access to them be arranged?

There are other questions: what will be the procedures for selection and how long will it take? If others are to be involved, will they be available at the required time and do they know what their remit will be? What preparation is needed to arrange meaningful benchmarks?

Some text books say that the ideal selection team comprises a systems analyst, programmer, operations person, system programmer, business analyst, etc. It works sometimes, but such committee-type approaches often fail — the most important thing is to ensure that all relevant functions are properly informed and involved.

A better approach might be to have a couple of experienced people driving the project and reporting to a project management committee at agreed checkpoints. This reporting is best done in the form of presentations/meetings where questions can be asked and discussions held, rather than formal reports which are more time-consuming and restrict communication to one direction.

The first step in the whole exercise is to propose and agree the terms of reference. It is essential to have the right framework agreed at this stage before any time is spent on subsequent activities.

The time spent sorting out any misunderstanding or disagreement is nothing compared to the time lost later if this is not done. The content of the terms of reference can be summarised as being about aims, activities to achieve the aims, names of nominated contacts, resources, constraints, timescales and reporting mechanisms.

Ensure enough time is allowed for agreement on these issues — it is the foundation for the rest of the project.

If you are fortunate or someone has planned in advance, the data requirements have already been identified. More than likely they have not, and depending on the organisation and on how far computers have been used, this process could take a considerable amount of time.

The information needed, at a high level, is what areas of the company need databases (eg financial, engineering); the use to which these databases will be put (eg information systems, production systems); the nature of the databases (eg online, batch, distributed); whether end-users use the database directly and any other data management facilities; are needed (eg data dictionary, testing facilities, prototyping tools, etc).

This is another area where agreement is needed from other parties. Make sure you now have a good idea of how much ground-work has already been done before proposing how long this process will take.

Compiling the initial list of contenders and drawing up the shortlist involves matching requirements and constraints against the systems of the market.

The list could be much longer than might be thought for an IBM installation and a free choice of DBMS software, but it could be shorter than imagined if the hardware is not IBM. In the latter case, the initial list of contenders may be the same list as the short list!

In the former, make sure enough time is allowed to satisfy yourself and others on what the key factors should be for entry to the shortlist. It can be dangerous to draw up the shortlist by simply ticking off requirements against a set of DBMS facilities.

Try to obtain a description of each vendor's system from an independent source, with a summary of each facility. Make sure enough time is allowed to gather these sources of information and to study them.

Evaluating and selecting from the shortlist is the climax of the exercise, and the grouping of a number of activities. These include: informing the selected vendors that they are on the shortlist and will be invited to present their

products; organising vendor presentations and benchmarks; holding internal meetings to discuss the various systems following up queries and obtaining further information from vendors; recommending the DBMS to be installed to the project management committee; and getting a decision and informing all those involved.

A large element of the work at

Certain rules should be drawn up to ensure as little time as possible is wasted on considering non-runners

this stage involves other people from within and outside the company. It is sometimes extremely difficult to arrange presentations and meetings at times to suit everyone. Plan to keep momentum going by getting views on vendors' presentations out to those at-

tending quickly after the presentations and ask for an early response.

When planning the schedule, check the availability of key people well in advance. Plan to advise people of presentations and meetings well in advance and put reminders of this into your schedule.

Have your draft schedule agreed by the project management committee and make sure other key people involved are aware of it. The final report will come to fruition during this stage although it should be developing throughout the process — make sure you allow time for typing, distribution and feedback.

The current trend nowadays is to look at a database handler not just as standalone pieces of software (which can make file handling more dependable and efficient), but as part of a set of data management tools. This toolkit could include, as well as a database handler, a transaction processing monitor, a data dictionary, a generalised query language, a program (or system)

generation aid and a graphics module.

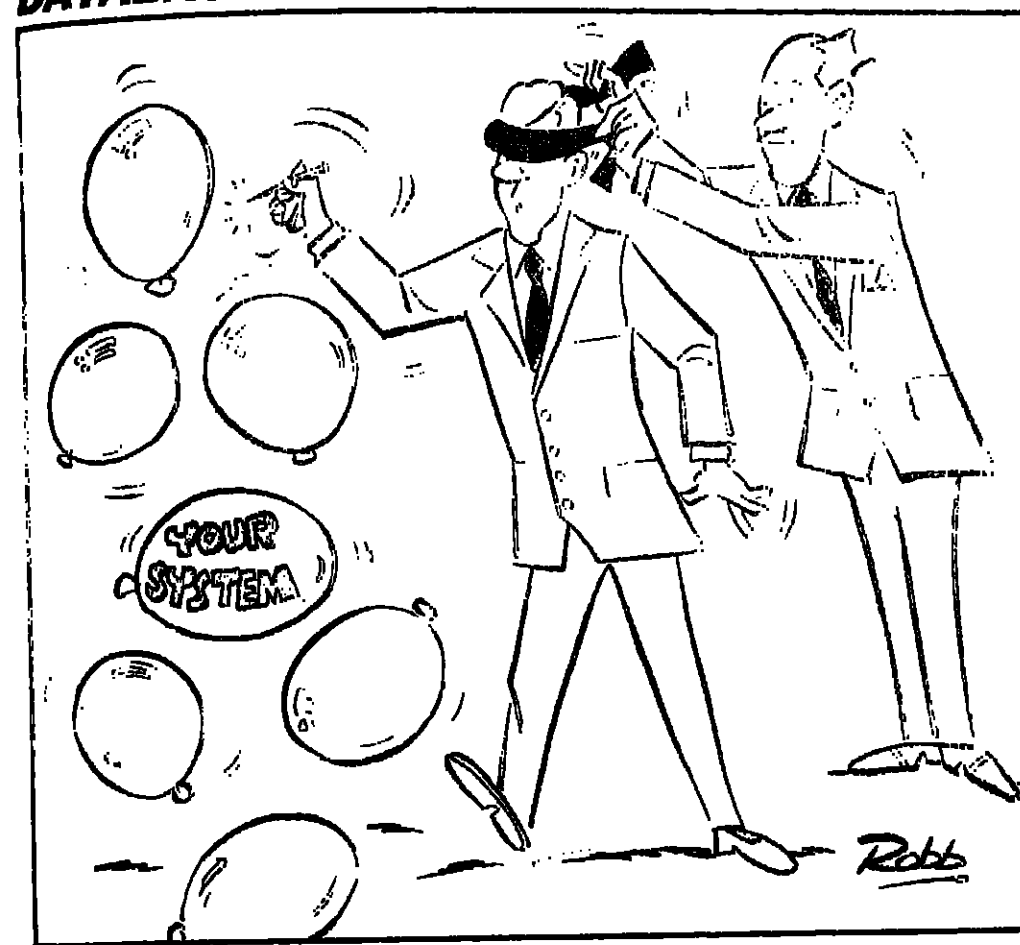
It is important to look at both future trends in technology and the company system development programme. This may result in certain requirements being given higher or lower levels of importance than they would have.

For example, is it worth considering an RPG facility which, although excellent for what it does, is now being superseded by non-procedural language software? The list of contenders may be much larger than imagined if the hardware is IBM and freedom of choice exists. On many other machines there are often only one or two systems available.

However, quite a number of systems which can be compiled on most mainframes and minis are now available (eg Rapport, Mimer) which is beginning to provide a better choice for some of the non-IBM systems than they have had in the past.

New database management
Continued on page 19

DATABASES



Get the database right first time

From page 18

systems come on to the market at a very high rate, and it is therefore best to ensure that whatever source of data is used to compile a first draft should be up-to-date and reliable. There are companies which provide a service in information on database and data management products, eg Datapro and Auerbach, and other sources like the *Computer Users' Year Book*. Such facilities can be used as a starting point.

Other possible sources are: the computer manufacturer (although if it has a DBMS of its own it may not be the best source to ask about competitive products of its machine); and other users of the same hardware (a list of users should be available from the manufacturer or its user group — the user group may even have a database sub-user group of its own).

Certain rules should be drawn up to ensure as little time as possible

is wasted on considering non-runners. The following are key considerations.

Is the DBMS available on the required hardware? If not, forget it, unless there is a written commitment to make it available by a certain date.

What is the quality and quantity of support, and where is it situated? A one or two-man support team in another continent is fraught with danger — even if the DBMS looks good.

What size and where is the user base? A reasonable number of other accessible users with whom common problems and solutions can be shared is reassuring when there are problems, and gives more strength in making representations to the vendor.

What are the cost constraints? Is there a budget for the DBMS purchase?

Is the DBMS compatible with other key software? There may already be a transaction processor, data dictionary or file management system with which the DBMS must interlink.

The usual approach to compiling the shortlist is to evaluate each vendor offering against a list of requirements in a table. If every required facility was of equal importance, value and relevance the choice would automatically result from this process, but it is never that simple.

There are different techniques that can be used to compile the list so that it is more relevant to one's own situation. For example, rather than entering "yes" or "no" under a heading, insert "good", "average" or "poor" as a judgment of each vendor's facility. These tables are probably best seen as a good input to the process, but the decision on the shortlist should also take account of dialogue which has been established with the vendors, how knowledgeable, communicative and helpful the staff are and, if you can manage to visit them, what established customers think of their vendor.

The shortlist should comprise two or at most three vendors to examine in detail. Now should be considered what presentations, demonstrations and benchmarks tests need to be organised and who will be involved.

This is an appropriate time to involve others who have some influence on the decision, although they may not have been involved so far. This means a cross-section of people with different levels and types of knowledge will be participating and this must be borne in mind when organising presentations and demonstrations.

Remember, you are the potential customers and therefore call the tune, so there is no reason why you should not tell each vendor what ground you want him to cover at a presentation, the required level of detail, and how long it will be given to make a case. There is always a danger at this stage that as senior management may be present, presentations or demos will become sales-oriented, and this must always be avoided.

Vendors usually want to demonstrate their own pet system, but it may be more useful to ask them to demonstrate their software working to one of your systems specifications. As well as providing proof of technical capabilities, this tests out any claims being made about productivity of the system.

Vendors may have a genuine resource problem in getting someone to do the job, but if you can arrange to have one of your own people to work with him and keep the activity to less than seven or eight man days, most vendors who have nothing to hide will oblige.

It is essential to follow up presentations and demonstrations immediately afterwards by obtaining a view from your own colleagues.

Try to hold a review a day or two later while thoughts are still fresh. In everyone's mind, and it may get things moving by summarising the presentation and suggesting some conclusions from it.

In addition to this, ask for written comments — a questionnaire approach can be a useful prompt for opinions.

If the vendor's offices have not already been visited, make a point of it at this stage.

By being on the vendor premises, meeting the staff, and seeing the environment in which they work, useful impressions will be formed. It is particularly useful to visit the development centre, and not just a sales office, but this is not always practical.

A visit to user sites can be even more enlightening, however, and this is essential when seriously considering a vendor.

It may not be proper to contact a user directly, but after deciding which you would like to see, ask

A visit to user sites can be even more enlightening, and this is essential when seriously considering a vendor

the vendor to arrange for you to contact it directly. Users may not always be able to spare enough time to see you, but if this is the case do not rule out a telephone conversation if it is felt that there is a lot in common.

When visiting users make sure you are well prepared and get as much as possible out of the visit, which can be helped by having a checklist of questions and topics to discuss.

By this time you should have as much information as you need and can handle. It is possible to go on looking at new pieces of software, talking to users, and evaluating facilities for years — it has been done! Better to know your objectives, set your timescales and keep to them, unless there are really exceptional reasons for delaying.

The final considerations should be based on:

■ The vendor and its support. You now know the vendor fairly well and might even have worked briefly with it. Is it the kind of organisation to which you are happy to entrust your company's data management future? Remember its employees' attitudes and abilities are just as important as the product.

■ The product and its future. Is the product stable, but yet modern and developing? It is dangerous to go for an unproven product, but this extreme must be balanced against settling for one which has run its course. There should be a happy medium where you are not pioneering the unknown, but using a proven product with good facilities and exciting development potential.

■ The role of database within your organisation. The role of database, and the relationship of both the software and the staff to other software and staff is fundamental to the selection process. If this is not thought to be important you are likely to identify a good standalone DBMS.

If it is thought to be important, you are likely to identify a good DBMS which is also part of a set of data management and software products — a much better recipe for success.

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OEMs

Micros cause major re-think

The arrival of the micro is forcing OEMs to radically change their line-ups. John Lamb reports

TIME was when an OEM or Original Equipment Manufacturer was a firm in the vehicle business which assembled cars or trucks from major components supplied by mainstream auto manufacturers.

By association, the term was applied to computer companies who put together systems from parts manufactured elsewhere. But it was not until the arrival of the microcomputer that the term OEM came to mean a company whose principal activity was to flesh out a ready-made processor with applications software and perhaps peripherals.

Now it seems the game has changed once again. The arrival of the microcomputer in a big way (there is hardly a well-known manufacturer now without some kind of desktop personal computer) is forcing OEMs to think long and hard about their product line-up.

In the US, where they tend to be a bit ahead of the game, *Daum* magazine is forecasting that all OEMs will be offering some kind of small machine by the end of this year. And those who don't or who are late into the field are going to find life difficult.

Here, OEMs are only just beginning to get into the swing of things. They [OEMs] are very tempted by the market," says Jim Oatway, head of systems supplier marketing support at Data General.

"Traditionally, they have tailored their products for individual markets, but they are finding the desktop or personal computer a little bit difficult to manage. Some will get their fingers burnt because they find it difficult to change from their normal practice of charging for hand holding and catering for their customers' needs."

The signs are that personal computers are already making an impact on the traditional OEM minicomputer business. Major suppliers like Prime, Data General, Digital Equipment and Perkin-Elmer have been trimming prices in a bid to keep the inflating flowings.

The arrival of the microcomputer has also spawned a new vocabulary in the OEM business. Out go the names OEM and systems house; in come such exotic terms as Value Added Reseller, Systems Integrator, Value Added User and even Value Added Dealer: new supermarket images to match the "pile 'em high and sell 'em cheap" philosophy of much of the personal computer business.

In Britain, however, the business still divides along traditional lines. The largest group of OEMs are the commercial specialists adding software to a standard system and selling it in a geographical or specialist market.

Then there are the more traditional OEMs, which incorporate their purchases into some larger system. These technical OEMs may be building typesetting equipment, body scanners, production lines or even telephone systems.

Finally, there is a small group of equipment brokers. These are companies that add no value to what they buy from manufacturers, but act as suppliers to techni-

Some will get their fingers burnt because they will find it difficult to change from their normal practice of hand-holding

cal OEMs or as a safety net in times of short supply.

Of course, there is a fourth element in the OEM equation, the manufacturers' own sales teams. As much as 60% of a manufacturer's sales can come from his own salesforce. Ensuring that these salesmen do not tread on the toes of their OEM counterparts is an almost impossible job, and perhaps one that manufacturers are in two minds about.

After all, the reason that they sell to OEMs is that selling direct is too expensive for them. If they can get to the end-user themselves, then they will.

That is the case with Data General. "Direct sales account for between 35% and 40% of our business and it is growing," says Oatway. "But that doesn't mean we don't aim to maintain our commercial and technical OEM market."

Oatway explains that Data General tends to operate on a geographical basis rather than specialising in manufacturing, medicine and so on, as many of its OEMs do.

Clearly an OEM supplier would like to have each national market nicely divided up into vertical sections and, for more common or garden applications, like commercial accounting, into geographic plots. Each slot would be filled by a small number of OEMs who between them could guarantee a

manufacturer blanket coverage of the market.

"It doesn't work like that," says Oatway. "Ideally, we would like to have each of our customers in different markets. But it is very difficult for a small OEM to become experienced in one particular area. We do, however, have one or two OEMs who have carved out specific niches for themselves, like MGE who are strong in accountancy practices."

Establishing these vertical markets is the most important priority for OEMs, according to Oatway. "Users are aware that if they are in a specific business, they want to deal with someone who understands it. And this boils down to the need to have non-computer expertise."

One trend that has helped OEMs to home-in on specific types of customer is the tendency for end-users themselves to spin-off the fruits of their investment in data processing.

P&O Computer Services, for instance, was set up to run a bureau service for its maritime parent. By 1979, the company was writing mini and micro software for the shipping, freight forwarding and construction businesses.

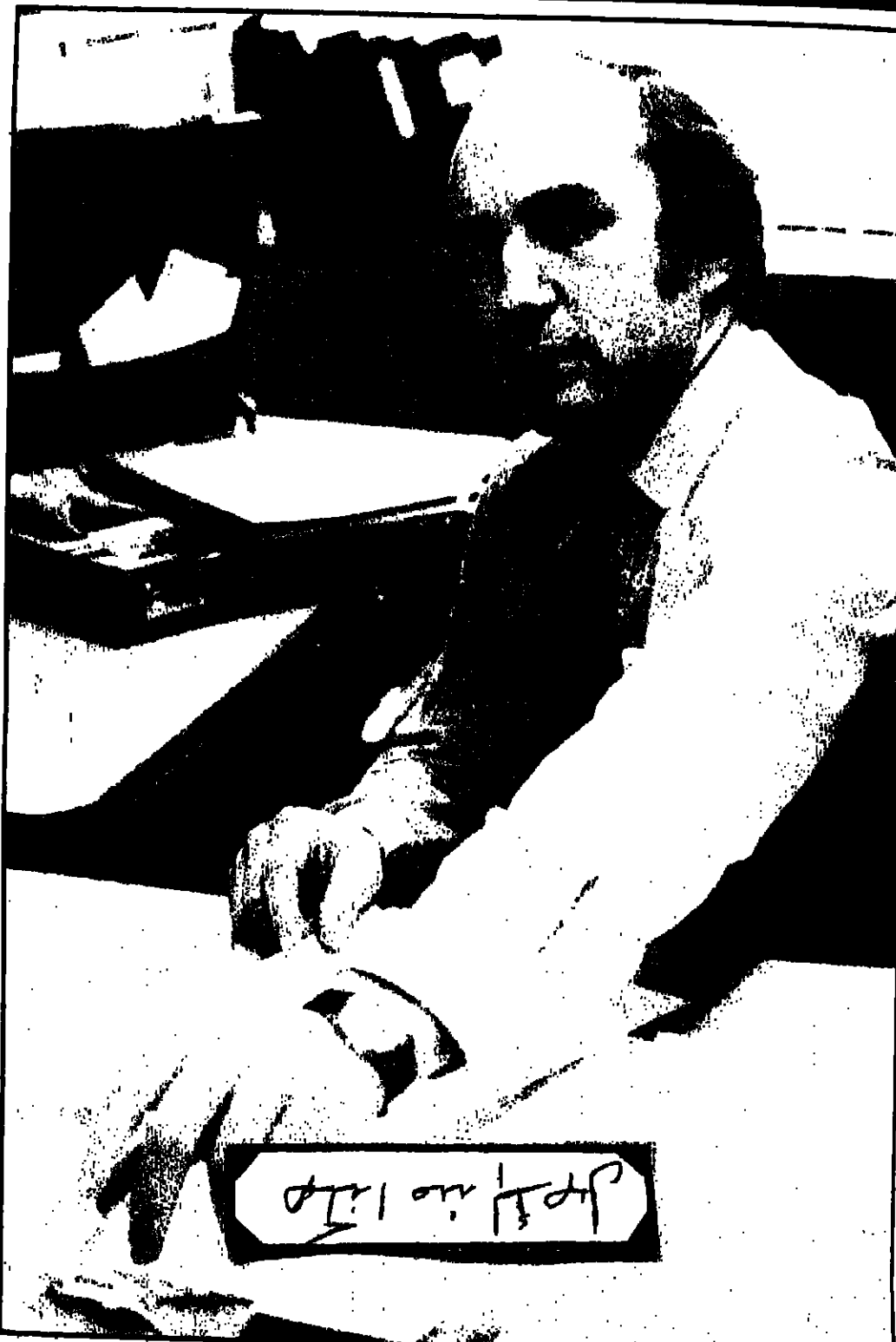
The company lists consultancy, systems sizing, installation, training and recruitment among the services it offers, on top of Digital Equipment and Data General systems.

P&O is in an ideal position to draw on specialists who have cut their teeth on the business for which they are writing and installing systems.

The relationship between OEMs and their suppliers has not always been entirely amicable. Changing product lines and pricing policies tend to upset the delicate balance between the two. However, the major manufacturers have begun to offer more support to their OEM customers in the shape of software tools to help in the development of applications and improved training facilities.

But this may just be a short-lived thawing in relations. It is clear that at present, microcomputers offer little to the conventional OEM unless he is prepared to get into the retailing business, or can guarantee the high volumes needed to make such business pay.

Oatway is convinced that as far as Data General is concerned, there is no reason why OEMs should not branch out into smaller systems. He maintains that Data General's three-line micro range caters for all styles of operation. At the bottom, there is a traditional



CADOGAN. "Dealers need to focus more - the general purpose OEM is a dying breed."

micro with CP/M and MS/DOS for dealers; a middle range business machine and, at the top, the Model 20/30 with the same operating system as the established Eclipse mini.

Data General is in the throes of setting up a distribution network for the micro range, which, according to Oatway, will include commercial and technical OEMs as well as micro dealers.

Bill Cadogan, marketing manager of Data General's UK operations, puts his finger on what he sees as the main growth areas in the OEM marketplace. "Obviously, the desktop system is becoming more and more functional," he says. "As a result, OEM vendors have to sell more systems to get the same turnover as they used to get on bigger systems."

"At the smaller end of the market - a group of microcomputers for example - the market is definitely growing at between 30 and 40% per year."

"At the other end of the market, with the higher volume 32-bit systems, demand is growing at about the same rate."

According to Cadogan, 16-bit sales have levelled off, and although the sales figures are still high, they are not increasing at the same rate.

Cadogan is also specific about the kinds of areas in which OEM dealers should be operating. "Dealers need to focus more - the general purpose OEM is a dying breed. Successful OEMs these days are entering vertical markets, developing their own software for particular specific markets. OEMs are also going to have to sell office automation software in addition to the industry-specific software, too."

The growth in networked micros may be the best opportunity for existing OEMs. There is little doubt that operating and setting up such systems is beyond the abilities of most users, even if they had the inclination to spend hours familiarising themselves with the technology. The arrival of proven networking software and standard network interfaces could open up a market for OEMs that is every bit as big as that for minicomputers.

In the meantime though, OEMs face a difficult period of adapting to new styles. "My message to OEMs is to make sure they are fully aware of the market and of the effects that a broader product line will have on their product line," says Oatway.

They should also be thinking long and hard about the best way to bring their software down to the smaller machines when they come.

The OEM superstar of them all, John Lamb is a freelance journalist.

OEMs

The never ending tale of badge engineering art

The chains of badge engineering which have emerged out of hardware OEM sales are endless, and form some strange partnerships. Della Bradshaw traces the growth of this new genus and defines some of its neighbours

BOXES of tea from Sainsbury or woolly jumpers from Marks and Spencer have one thing in common: their origins may be unknown but the label convinces the customers that what they are buying is "quality". When it comes to computers, the situation is much the same.

Those strange selling practices known as OEM sales, or badge engineering, or often as not just straightforward marketing, have been keeping the computer market alive for years. But now OEM-ing has really come of age, with IBM's decision to sell its large 3380 discs for resale by Siemens, NCR and Digital Equipment.

Of course, IBM itself has not been able to survive, particularly at the lower end of the computer market, without a bit of OEM-ing. To get the Personal Computer out on to the market place at the right time and in the right quantities, it had to sub-contract a lot of its manufacture, even as far afield as Japan and Taiwan.

But is that good solid OEM-ing, or is it just sub-contracting, or is it marketing, or what? The definitions seem as vague as the alliances. A spokesman for ICL, for example, says the equipment ICL supplied under an OEM agreement were printers, from Ricoh and Qume, which are bought in and sold without even gluing on a new label, while the larger Siemens laser printer is marketed as the ICL LPS14.

But ICL is one of the most prominent companies when it comes to buying in equipment - there is the Atlas 10 mainframe and the point of sale terminals which it buys from Fujitsu, the Perq system which comes from what used to be called the Three Rivers Company in the US, and the DRS8801 word processor which it gets from Logica VTS, not to mention the recently approved DN2000 large digital PABX, better known as Mite's S2200.

And best known of all is probably the Rair Black Box, sold by ICL as its eight-bit personal computer.

Of course, they all undergo a rather swish change of plastic boxes, and come out neatly kitted in brown and cream, as well as

Even IBM itself has not been able to survive without a bit of OEM-ing

sporting a flashy new ICL logo. According to ICL, the real name for that is "badge engineering", even though the term engineering seems a little over the top as a description of the process involved.

ICL, of course, is not adverse to selling its own kit to other manufacturers which are badge engineers. British Telecom's Merlin division, for example, gets its kit direct from ICL, with a bit of Logica software thrown in for good measure.

But whether you want to talk about badge engineering or value-added re-sale, the root of all these marketing plays began in the dim and distant past with hardware OEM sales. That was the sale of ships' or boards or chassis for machines to other companies for them to package up into their own product.

The OEM superstar of them all,

Digital Equipment, began in exactly that way, and some of this hardware OEM type of marketing still goes on. In the loosest terms, it is possible to think of Gene Amdahl's Trilogy Corporation performing the same sort of function in licensing out the use of its wafer-level fabricated chips for use in Digital and Sperry computer systems.

These days, the re-sale of other people's products, whether with the addition of bits of software or kit or not, is big business, and covers everything from the biggest of mainframes to the smallest of micros, not to mention peripherals and add-ons as well.

They all undergo a rather swish change of plastic boxes and come out neatly kitted in brown and cream

At the large end of the market in particular, it is easy to see why marketing someone else's product is better than developing our own I/O cost. For the company which actually did the development, there is access to markets without the investment in marketing teams.

Just to look at the big IBM plug-compatible suppliers puts you in the picture. You can buy the big PCs from any of eight suppliers - Amdahl, Hitachi, Fujitsu, BASF, Olivetti, NAS, ICL or Siemens - but you have only actually got a choice of three ranges of machines - from Amdahl, Hitachi and Fujitsu. The others just buy them in.

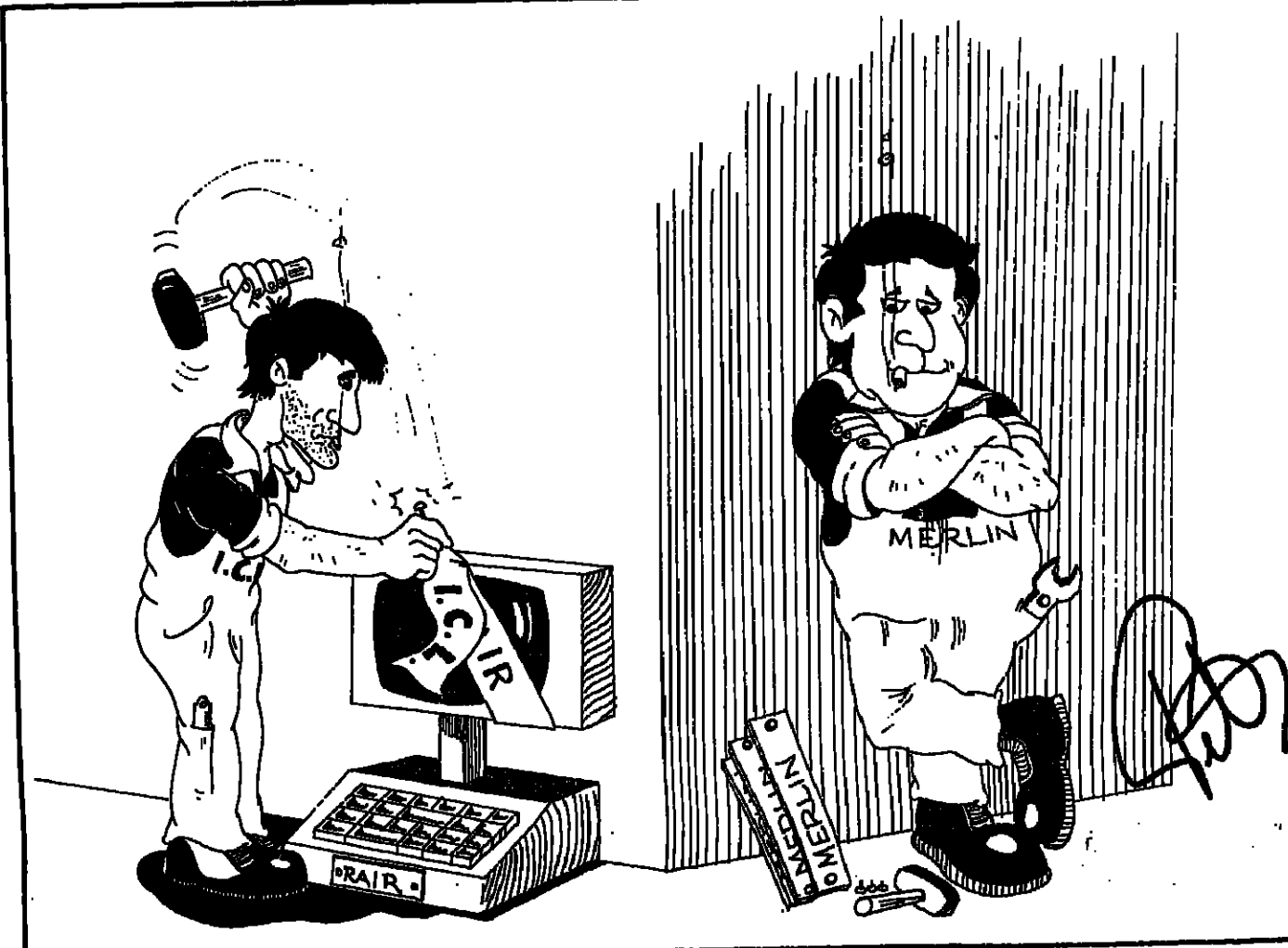
In the middle of the computer range, numerous mini-manufacturers sell their products on, either for "value-adding" with software, or as the processing centre for other machines. Digital Equipment, one of the biggest suppliers of them all, says it is unable to disclose what percentage of its business goes to OEM customers, or who those customers are.

But obvious uses are for scientific and for engineering purposes - CAD/CAM for example. Calman, the CAD/CAM arm of the US General Electric conglomerate, for example, has developed most of its software on Vaxes, and sells the hardware for Digital, along with its software.

Data General is more forthcoming about its OEM sales. About 50% of the UK sales of Data General hardware goes to OEM dealers, that is, dealers who sell the hardware carrying the Data General label but with added software. Companies like MGE, one of the leading vendors of computers to the chartered accountancy profession, use a range of Data General hardware.

Liverpool-based Fraser Williams uses Data General hardware to complement its software for insurance brokers and estate agents, and also markets Digital Equipment as well.

Perkin-Elmer also sells its kit, mainly to scientific or top end of the market companies, which packet the equipment for supermini applications. One such company is ABS Computers, which launched its top-of-the-range Chorus 321 in October last year, built round a Perkin-Elmer 32-bit processor. The Chorus runs under Unix but ABS configures the systems with its own terminals



What's in a name?

and peripherals. The Chorus 123 is not a cheap product - it starts at around £100,000 - but it can support up to 32 terminals from up to four Mbytes per second of memory.

In the micro field, companies like Rair and Texas Instruments spring readily to mind as companies that happily sell their machines for resale, not to mention the Timex micro, just another version of the Spectrum.

And it's not only one brand of micro per distributor either.

STC, for example, classically known as a telecommunications company, decided it would get into the micro field about a year

ago. STC took on Commodore, Hewlett-Packard, Rair and Digital Equipment hardware, which it sells with standard packages like Visicalc, Silicon Office and Peachtree software.

STC's reason for getting into micro distribution is obvious. As the business manager of STC Micros said, "Anybody with an account with STC Components Group has one with STC Micros - that means we already have 6,000 potential purchasers on account."

Other telecommunications companies have tended to go for terminals instead of micros, as a means of selling communications and office automation software such as teletext. Plessey and GEC in the UK have opted for Convergent Technology terminals - Plessey is to sell them as part of its Tidy office

automation network based on the IDX digital voice and data PABX. AT&T in the US has also made the decision to go in with Convergent for its office automation project.

As well as the basic machines, peripherals are generally supplied on an OEM basis, especially printers, which require completely different development techniques from those usually employed by the computer manufacturer. Centronics, Qume and Ricoh are all big names in the OEM supplies business. So is Brother, which supplies Olivetti and Sord, and Newbury Data, which supplies companies like Decision Data.

When the printer firm Centronics decided to run an advertising

campaign under the slogan "What's in a Name?", a couple of years ago, showing a bunch of re-wrapped Centronics printers, it met with considerable resistance from several of the OEMs: so much resistance, in fact, that the ad campaign had to be shelved.

Whatever happens in the OEM markets, printers look like remaining one of the major types of kit to be shipped around. On the computer side, things appear to be growing and shrinking, depending on which particular bit of kit is being sold, and what it is being sold with. As an overall rule of thumb, however, OEM vendors are averaging 30% growth per year.

OEM vendors are averaging 30% growth every year

to sort out with OEM suppliers is just exactly who supplies what to whom. The problem is highlighted by Digital Equipment, which is not even prepared to say who its equipment goes to.

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Della Bradshaw is communications editor of Electronics Weekly.

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How to survive in the OEM jungle

Frank Booty looks at the intricacies of selling kit in this day and age

ONCE you bought a computer from either the manufacturer or an Original Equipment Manufacturer (OEM) for resale to someone else. But that was once upon a time.

As the computer industry has matured, so the jargon words and channels of selling the products have become more complex.

Over the past half decade, the terms systems house, systems integrator, consultant and hardware OEM have all become established.

Recently in the US it became clear that rapid changes in computer and related technologies had created lower-cost products and systems which opened up vast new end-user markets.

To meet the heavy demands from these new markets manufacturers began to put into place distribution networks which use a variety of Independent Sales Organisations, or ISOs.

There are many different kinds of ISO, including distributors, dealers, systems integrators, computer retailers, commercial OEMs, office machine/products dealers, agents and representatives.

The rising importance of distributors resulted in the first Dealers' Exhibition in 1979 - an event which subsequently went on to spawn a series of shows for ISOs, including Comdex/Europe and (in March 1985) Comdex/Japan.

Last year's Comdex/Fall in Las Vegas in November boasted over 1,400 exhibitors in five separate exhibition halls consuming 1,200,000 square feet of exhibit space - a far cry from the 156 exhibitors at the MGM Grand Hotel in Vegas in 1979.

This means that new avenues for selling computer products have been created. Increasing costs of marketing computer and word processing products within Europe have led to searches for new, lower-cost methods of distribution.

Europe is subtly different. Aside from the two-year US lead in the technology race, there are the often unacknowledged problems of getting across Europe's cultural and language barriers, as well as the difficulties thrown up by fragmentation and duplication.

And European ISOs need to move carefully in acquiring their products, particularly if they cross national boundary lines. For example, transfer pricing can make collective buying in the US an attractive proposition, but the trade-off may be a loss of manufacturer support. Hence the advantages of collective buying in a country other than the ISO's own have to be considered carefully.

However, the US marketing hype has made its impact on European territory. Most people involved in the buying and marketing of computer equipment in Europe are now with the concept of the Independent Sales Organisation. Examples of ISOs include

Pragna, of Rickmansworth, Herts, which offers various types of printer product and other peripherals; Sintrom Electronics of Reading which sells microcomputer peripherals to end-users and OEMs in Britain; Unicom of Milan which includes a chain of computer retailing shops trading under the name of Computaria; and Kontron Elektronik of Munich, which markets computer peripherals manufactured in the US and Japan to OEMs, systems house and end-users in Germany.

Nordic Software and Kontorsveckel of Stockholm both specialise in the distribution of personal computers while Geveke Electronics of Amsterdam is distributor of computer products, data communications and industrial electronic equipment.

There are also the US shows which have been duplicated over here, notably the Comdex/Europe event and the Invitational Computer Conferences (ICCs), which are constituted from a series of one-day mixers of seminar programme/OEM exhibition hosted at major European sites like Frankfurt, Stockholm, Paris and London. These regional displays of operating

European ISOs need to move carefully particularly if they cross national boundary lines

equipment, combined with technical seminars, help participants to reach key decision-makers where they live and work. Simultaneously the ICCs support regional sales personnel with an economical use of time, money and manpower.

In addition, the conferences are held in major hotels, selected for their location close to major OEM marketing areas and have an "invitation only" format - to exclude time wasters, students and hobbyists.

The US is in the grip of a second marketing phase, the Value Added Market, VAM. Basically, this is made up of Value Added OEMs which trade with Value Added Resellers, both of which sell to Value Added Users.

The products sold into the Value Added Market (to the OEMs, resellers and innovative end-users) include CPUs, single-board microcomputers, array processors, tape and disc drives, terminals, printers/plotters, data communications equipment, add-on and interfaces, controllers, software and supplies and media.

This is a practice which has been going on for some time. But the terminology has been changing to reflect the state of the industry. Value Added OEMs include

manufacturers of computer systems and hardware OEMs. Value Added Resellers are defined as systems houses, systems integrators, communications systems integrators and consultants.

Typical third party OEMs are Microsoft, which produces operating system software for microcomputer systems (plus boards that provide Basic or Fortran compilers for Apple micros) and Johnson Controls of Leatherhead, which manufactures and installs automated building environmental control systems.

Value Added Users are highly sophisticated users (including in-house systems integrators) which add value by incorporating mini/microcomputer products into their own unique computer-based systems for applications in engineering, science, manufacturing, government, institutional and financial applications.

One market in which a great deal is currently happening - and which is set to expand - is computer graphics. Originally a technology so complex, and advancing so rapidly, it took engineers to sell the computer graphics. Computer graphics marketers now recognise the need to capitalise on this expanding market.

Alto Computer Systems, selling direct, through systems houses and dealers (Unison Technology, Triplot Associated Systems), manufactures disc drives and 16-bit multi-user microcomputers.

Digital Equipment Corp sells its products by a direct salesforce, through "authorised" distributors (Arrow Computer and Rapid Release, for example) and through DBC-owned retail stores.

Hewlett-Packard manufactures 16-bit microcomputers, desk-top computers, alpha numeric and graphic CRT terminals, printers, plotters, hard copy units and minicomputer or desk-top Computer-Automated Test Systems based on its extensive line of instrumentation products. HP sells direct and through distributors.

Intel manufactures microcomputers, add-in memory and microprocessor development systems, based on its full line of microprocessor and memory chips, and sells direct and through distributors (such as Rapid Release).

Value Added Resellers are third party system integrators which buy from OEMs and add value by incorporating mini/microcomputers, peripherals, software and other related products into complete computer-based systems they sell.

Typical third party OEMs are Microsoft, which produces operating system software for microcomputer systems (plus boards that provide Basic or Fortran compilers for Apple micros) and Johnson Controls of Leatherhead, which manufactures and installs automated building environmental control systems.

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The market is more mature, more sophisticated, much thicker in jargon and more fiercely competitive

Computer graphics, after all, affect the sales of graphic terminals, systems, monitors, controllers and software needed to meet the requirements of applications such as scientific data processing, laboratory control, industrial automation, design and drafting, computer-aided instruction, and specialised control. Similarly, the computer graphics

argument can be applied to the markets constituted by line printers, solid character printers, serial printers, floppy disc drives, Winchester disc drives, tape cassettes, cartridges, modems, CRT terminals, floppy disc media, printer ribbons and tape drives.

There is also the new OEM market of personal computers used in value added systems. In an incredibly short time, the personal computer has created a market as vast and diverse as the industry itself.

Advanced technologies, marketing strategies and new distribution channels are both the cause and result of the personal computer boom.

The personal computer OEM market has developed to serve the needs of the user requiring a more sophisticated system, and IBM has instituted a value added programme for the IBM-PC.

Those wishing to buy a personal computer need to go to one of IBM's authorised dealers in the UK and Eire. At the last count there were 144 - 29 of them based in London. Specialist Computer Centres of Birmingham and Liverpool, for example, are authorised dealers for IBM-PC products and provide a full range of personal computer add-ons. Techint Systems Int of Bourne End, Bucks, supplies terminal emulation products for the personal computer so that the machine can be used with System 34, System 36 or System 38 machines for full-featured S251 Model 12 emulation for remote or local operation.

Add-on printed circuit boards to enhance the personal computer are marketed by such organisations as Cubic Distributing of London, Intertek of Slough and CPS (Data Systems) of Birmingham. Apple also has a continuing OEM support programme, and in particular the company has demonstrated the significant inroads that personal computers have made into the industrial scientific OEM market.

In summary, to quote from International Data Corp, although the technical OEM market represents

a diminishing proportion of all minicomputer sales, the revenues are significant and growing at 13% a year.

Recessionary European economies have not helped this growth rate, although supplier revenues are expected to grow at a slightly

The US is in the grip of a second marketing phase - the Value Added Market

slower rate due to more value being added by the OEMs themselves in terms of hardware, software and services.

The increase of added value has been encouraged by the slowing of overall technical sector growth which has led to more purchasing of bare board components, including microprocessors.

Value is added in different ways by technical OEMs depending on application focus. Hardware manufacturing has added value ranges from sensors used in process control and energy management applications to specialised workstations for Computer Aided Design (CAD).

The need for special hardware reduces the possibility of a major supplier attacking an application area itself rather than through an OEM, which helps to assure the OEM's long-term viability. But it does not lessen the threat of the OEM vertically integrating into CPU manufacture.

Where pressures for cost reduction are strong and CPU requirements may be satisfied by the use of microprocessor based systems, IDC says, OEM manufacture of the CPU is likely to result.

So you can still go out and buy a computer - but the market is now more mature, more sophisticated, much thicker in jargon and more fiercely competitive and cost-conscious. Frank Booty is editor of Systems International.



As the computer industry has matured, so the jargon words and selling channels have become more complex.

The show for those who sell

The Trade Show is a must, says Andrew Thomas

THE second Computer Trade Show opens its doors at the Wembley Conference Centre next Tuesday. But this isn't just another computer show. It's the one UK exhibition aimed squarely at the people involved in the marketing of computers.

More than 50 companies will be at Wembley, showing micros, minis, word processing, software, components, peripherals and supplies. The Computer Trade Show doesn't aim to attract members of the public, but concentrates instead on the quality of its visitors - people who want to see and discuss products which they might take on and sell.

Admission is free on completion of a registration form, and the show runs from Tuesday 13 to Thursday 15 March. Opening hours are 08.30-17.00 on all three days. Nearest stations are Wembley Park and Wembley Hill, although this is one show which you can drive to with confidence - there's car parking for 5,000.

Amongst the exhibitors we find ACS, sharing a stand with Roland DG for the first time, showing a low cost (£132) graphics design package called Four Point Graphics, and BSS 2D, a CAD package featuring many of the facilities of mainframe systems but at low cost.

The package runs under PC-DOS or MS-DOS and can drive plotters of up to A0 in size. An A3 plotter, the DXY-800, and the Roland range of colour and monochrome monitors will also be on display.

Baydel is showing four new DEC-compatible systems and a streaming tape controller. The SJ14 and 15 use DEC's latest Micro-J processor chip and feature a minimum of 2Mbyte of mainstore and eight serial ports. The SJ14 has 40Mbytes of Winchester and 45Mbytes of tape storage for back-up. Operating systems supported include RT11, RSX-11M, RSX plus and Unix.

Computers is launching its new Lynx Laureate small business system, a CP/M compatible machine in the under £1,000 price bracket. This new UK machine is developed from the 48K and 96K Lynx home computers.

Alongside the Tatung VT4200 terminal, which emulates no fewer than 11 popular VDUs, Data Design Techniques is exhibiting its new Stacpac multibus system, high performance 68000-based system featuring colour graphics and the Uniplex System III implementation of Unix.

Data Efficiency has a new range of 12-inch monochrome monitors from Kaga/Taxan along with two new near letter-quality printers from the same stable, while on the General Automation stand, the Zebra family of Pick-based micros, ranging from the one to four user 750 to the 50 user 5500 will be on show.

One of the more familiar names at the show is that of Honeywell, in the guise of Honeywell Information Systems Italia, which is showing the first model of a 132-column, 150 cps printer aimed at the IBM-PC user. Features include 50cps correspondence quality and a 36x16 matrix.

Husky Computers, noted for its rugged micros which have found favour with the military, is looking for value-added dealers to distribute its new Husky Hunter, a CP/M hand held machine.

Husky is particularly interested in talking to dealers which have developed software for vertical market applications which could take advantage of the Husky's portability.

Mellordata, one of the four authorised Teletext dealers in the UK, will be demonstrating the new personal terminal, alongside products from Datamedia and Touch Technology, for which it is the sole UK distributor.

Two new micros from Hong Kong-based Rabbit Computer, the Wrap-Bit II and III, are on show, boasting low profile keyboards and IBM-PC, PCjr and Apple II compatibility. Rabbit promises a brand

new piece of hardware for launch at the show, aimed at the executive portable market.

Unix III appears once again on the SGS-Ater stand. The Samson is a desk top micro-mainframe bridge with demand-paged virtual memory, dual bus design and intelligent communications controllers. A wide range of applications packages and high level languages are supported.

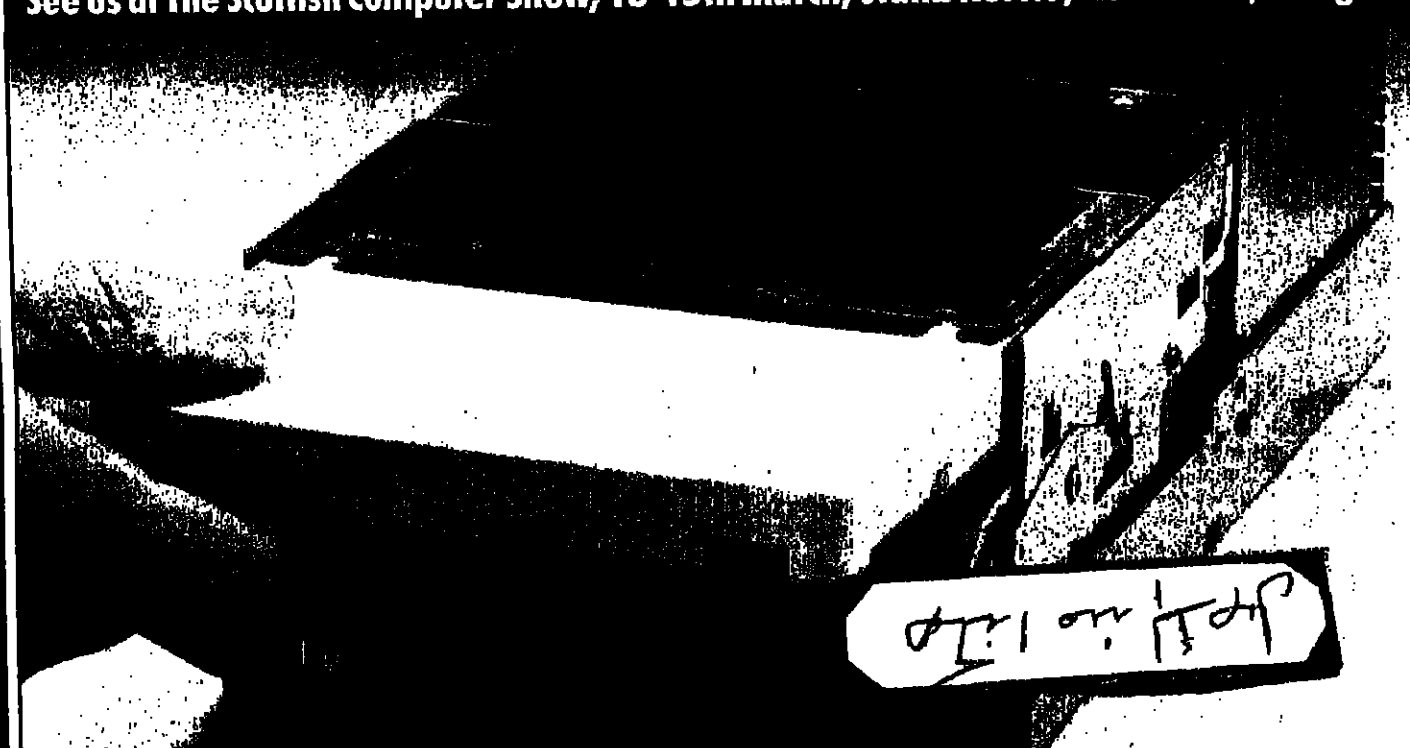
STC Business Systems is showing the ITT-developed Xtra, featuring IBM compatibility. STC claims that virtually all the software and peripherals available for the PC and PCXT can be supported, but that the machine carries a smaller price tag and a higher margin for dealers than the IBM counterparts.

The Computer Trade Show '84



The Show is at the Wembley Conference Centre, March 13-15.

See us at The Scottish Computer Show, 13-15th March, Stand No. A6, Kelvin Hall, Glasgow.



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WRM Business Supplies	299
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Newbury Data's new 5 1/4" Winchester has two 'half-high' discs: one fixed, one removable. Which effectively means it can slash the access time you get with floppy based systems. And also makes it a lot cheaper and more reliable than Winchester with tape cartridges. The Newbury Data 505 Disc Drive provides mass storage, data portability and backup in one far superior device. It combines proven technology with design reliability. Total capacity is 13.5 M/byte (5 + 5 formatted). And the space-saving concept uses only one of your front panels - unlike other combinations which use two. The 505 has a unique retractable head that never touches the disc. And there's also a

self-sealing air system that prevents possible contamination. In fact, there is no preventative maintenance whatsoever. Other features include: Embedded servo MTBF 8000 RO/Hrs. Daisy Chain capability. Industry Standard Cartridge with easy front loading. Ring or write now for further details.

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OEMs Mystery of the favoured

Dave Madden explains the success of Convergent Technologies

THERE were raised eyebrows last month when American Telephone and Telegraph signed a \$200 million deal with a five-year-old Californian company. But there need not have been: the company was Convergent Technologies, which even in Silicon Valley, is viewed as something of a phenomenon.

In the last year, Convergent, led by its flamboyant founder-president Allen Michels, has pulled in business that adds up to some \$2 billion from a customer list that reads like the NCC catalogue.

Convergent is fast becoming the industry's favoured mistress. Everyone is going to it for what they could probably get at home, and the fundamental question is "Why?"

The company manufactures a range of workstations and it sells exclusively to OEMs. But as David Johns, managing director of British micro-maker CPU Computers, asks in some bewilderment, "Why do the likes of Burroughs and NCR queue up for Convergent kit - which is based on fairly standard components - when they

also compete in the marketplace?" The remarkable thing about Convergent's progress is that the company is not merely imitating what DEC did in the minicomputer OEM market 10 years ago. The senior computer companies, with their pride and their resources, never felt the need to go to DEC for strategic new products, but that is exactly what is happening to Convergent.

According to Bob Groves, Convergent's vice-president, international sales, it has been the inability of the traditional computer manufacturers to react to changes in the marketplace that has given Convergent its chance.

"Many of our customers had their own office systems products in development, but they had also got a salesforce in the field screaming for products, and when their own systems looked as if they would be late, then they came to us to fill the gap," says Groves. "They knew that they could get our product to their customers."

David O'Brien, Burroughs' director of sales and marketing in



GROVES... "Our customers know that they can get our product to their customers."

the UK, says: "It is really very simple. If you look at the spread of products from any one organisation, it's far too wide for any company to fund and develop. We address particular market sectors, and in the final analysis, what we are providing is a service rather than the product."

"Once you have made that decision to look at other sources, the beauty is that you can go for the best in the market."

Groves contends that whilst Convergent is in nominal competition with Burroughs, it does not necessarily compete directly with Convergent kit.

"Burroughs aims our workstations at its own customer base, NCR took the AWS specifically for word processing, Gould uses Convergent kit as the front end to very large systems," he says, though he admits that there will be an overlap amongst its growing number of telecommunications customers.

This exclusive reliance on OEM

customers requires its own disciplines. Michels has said that "the worst crime that we could commit, aside from shipping products of poor quality, is to embarrass good people as good companies."

A hitch in production, whether of its own making or not, could compromise the company with big customers. And where Convergent is particularly exposed is over the availability of components. Both its N-Gen and Megaframe have Intel iAPX 80186 inside it, and that chip is in notoriously short supply.

Convergent says that it has stock of 70,000. The company is Intel's biggest customer after IBM and, says Martin Lippmann, UK sales manager, the relationship between the two is "close".

But there are signs that Convergent is nervous. Last month, in Phoenix, Arizona, the company showed its latest offering - the Miniframe. Its 24 salesmen and selected prospects were told that the product was available for immediate delivery.

The significance of this is that the machine is a single CPU version of the Megaframe, using the same virtual memory Motorola 68010, but without the troublesome Intel processors.

Convergent said at the turn of the year that it would ship N-Gen with an 8086 in place of the 80186 as a stopgap. But US reports suggest that most of its customers prefer to wait for the system proper and that Burroughs is putting back the launch of its N-Gen product from this quarter to next.

Another consequence of the way Convergent does business is that the demand for new products is voracious. This has long been a fact of life for Convergent. As a start-up company it was fast off the blocks with these very lucrative and prestigious deals. Burroughs, NCR and Thomson-CSF.

But to win that business, Michels had to gamble. Not only did we trade part of his company's cash of those deals gave the OEMs warrants to buy Convergent stock at fixed prices - but also options to manufacture its kit once they had exceeded a pre-set minimum purchase.

Burroughs was set to activate its agreement and get its B20 made in Japan by Kokusai Electric, when Convergent flashed its new N-Gen product, and Burroughs forgot about its plans.

This has compelled Convergent to develop at a rate that its competitors - Axiom, Fortune, or Future Technology Systems, for example - can barely envisage.

Yet at the same time, Convergent's first generation machines are still viable. Indeed, Groves says that the AWS is still going out at \$350 per day, and looks good for another 12 months.

Of course, it is a dangerous game to play. N-Gen and Megaframe were the worst kept secrets in the industry, and sales of AWS and IWS suffered accordingly. "We shot ourselves in the foot with N-Gen," says Groves.

This compulsion to produce new products colours the company. It is reflected in a somewhat unusual corporate structure. Mi-

The product line

CONVERGENT'S range now comprises two distinct generations. Its first product was the Integrated Workstation (IWS), built around Intel's 8086 processor, with another to handle graphics. In 1981, it produced a lower-end Applications Workstation (AWS) using an 8088 chip. 1982 saw the AWS Turbo colour graphic workstation. These micros were similar to Burroughs B20 and NCR's Workstation.

The new generation, which should contribute 90% of the company's earnings this year, includes N-Gen, an 80186-based workstation. The attraction for prospective OEMs is its adaptability and modular, building-block construction, with components delay-chaining on to the CPU. It is due to appear as the Burroughs B25.

chels sits above divisions which represent lines of business.

For example, Distributed Systems handles all the workstations - IWS, AWS, N-Gen; Portable Computing handles just Workstation; and Data Systems looks after Megaframe and Miniframe.

Each division has its own manufacturing, engineering, marketing, and financial functions. If a new business area emerges, the company adds a discrete division. So

the newly-formed Fourth Division is responsible for special products - that is AT&T.

Both Ada and Pick are in the pipeline, while Convergent has started a third party programme, compiling a catalogue of software that will run on Convergent kit.

Convergent is the definitive OEM supplier, Michels says, that concentrating on OEM business allows the company to reach "the broadest range of users in the shortest possible time".

The client list

CONVERGENT Technologies boasts over 100 OEM customers. In the US, that client list includes: Automatic Data Processing (ADP), Atlantic Richfield, Burroughs, C-3, Datapoint, Gould-SEL, NCR, Prime, Rolm, Raytheon, Storage Technology and TRW.

But the two deals, signed in 1983, which threaten to prove most significant for Convergent are with Motorola and AT&T.

Bob Groves says that the AT&T development would produce "unique" products, but that not even Convergent's other divisions really know what the Fourth Division is up to - though he reports that "AT&T loves the way we have decomposed Unix for the Office".

Office Unix is central to Motorola's interest, too. Its information systems division, formed from Four Phase and Codes, has signed a three-year \$250 million deal for the Megaframe and N-Gen.

Convergent's largest confirmed deal in Europe, exclud-

ing its arrangement with Bull, which was a renegotiation of the Thomson contract, is with Plessey. Plessey Office Systems is in for \$30 million worth of N-Gen, which it intends to incorporate into its IDX private digital exchange system.

Other UK customers include Star and Zygol Dynamics. Groves expects GEC to market Convergent kit in the UK. Its US subsidiary A. B. Dick has already signed a \$60 million contract, and Convergent hopes that GEC will do a separate deal here.

Convergent became a public company when its shares began trading over-the-counter in May 1982 in New York. Its career has been, to say the least, interesting. From an all-time high last June of \$40, its share price slid to \$17.75 in October, after it reported a fall in net-income of 20% in the third quarter of 1983 from a year earlier.

The company does not contradict forecasts that its sales should reach \$400 million in the current fiscal.

	1980	1981	1982	1983
Profits (\$ millions)	3.365	.777	11.9	14.9
Sales (\$ millions)	351	13.1	96.5	163.5

OEMs

OEMs make sales that the others miss

The OEM market is on the up and up. John Aczel dissects the statistics

THE market for OEM products is booming and overall sales are rising markedly in this sector. In certain areas, demand is doubling in value, and is being helped by the buoyancy of the microcomputer sector.

Unfortunately, there is no precise definition for OEM, particularly for statistical purposes. Nevertheless, it can be defined as a method of distribution by a third party, which involves added value in the form of specialised software or by extending the computer system in some way.

According to Stuart Houghton, UK manager for OEMs for Digital Equipment, this method of selling is a very useful one for many computer firms, as it ensures rapid sales of certain types of hardware. Houghton says that OEM reaches "the parts that other forms of selling cannot reach" (to paraphrase a well-known advertising slogan for beer).

In the case of DEC, OEM is of particular significance, as it is believed to represent at least 40% of total sales of the group. A growing proportion is sold to the technical sector, and is used in defence systems and electronic products of various kinds, such as radar. The commercial side is also of great importance for DEC, especially for marketing small business systems, particularly minis and micros.

In the US, OEM has been expanding rapidly over the past few years and most of the big manufacturers of computers, including IBM, DEC and Honeywell, are giving greater importance to OEM sales in promoting their products.

A number of factors help to explain the growth in demand for OEM products, but one of the main ones has been the introduction of cheaper hardware equipment, particularly microcomputers.

This has opened up the market for computer systems among smaller users and, in many cases, computer manufacturers have found it more preferable to market their micros through third parties, rather than getting themselves involved in selling directly to a wide range of firms and organisations, which normally have very specific requirements for their processing needs.

In addition, the market for mini and microcomputers has become much more specialised and is now operating on a vertical basis in most cases.

Statistical information about OEM sales is difficult to obtain and the official sources do not break them down in any meaningful way. Moreover, there are a number of problems in defining

this sector of the market. According to various industrial sources, however, it is believed that the size of the market for OEM sales - that is, including both the software and hardware components - is running at around £200 million per year. In the past 12 months the growth in demand for OEM products has been quite staggering and at present it is reckoned to be increasing at over 50% for the sector as a whole.

One way to analyse the market is to look at turnkey projects, for which billings are published for the major computer services companies.

During the first half of 1983 billings for turnkey projects amounted to over £86 million and represented nearly 20% of total sales by the computer services sector.

This proportion has been rising rapidly in the past two years.

One can make some adjustments for the figures prior to 1983, but any such corrections for the rise in the sample has to be treated with considerable care. If an adjustment is made to the previous figures covering the first half of 1982, billings for turnkey projects in that period amounted to between £45 and £50 million and, quite clearly, this growth has been quite remarkable, even allowing for some of the changes which have occurred in the sampling procedure.

The growth in micro sales has been very sharp and out of total turnkey billings they now account for about 20% This proportion is likely to rise as service companies concentrate on the micro side even more vigorously than before.

The private sector has been at the forefront of the growth in terms of turnkey billings and represented nearly 75% of the total. It is believed that on an annual basis turnover to industry and commerce has more than doubled in value compared to the corresponding period of 1982.

Within the various sub-groups it is quite clear that the added value aspect has played a leading part in promoting turnkey projects. In particular, software implementation (including the invoicing for systems analysis, systems design, programming and other forms of implementation) as well as software products (which includes the invoicing for sale or licence of software items) have been of great importance, particularly in the private sector.

In addition, the hardware element has also grown appreciably during the past 12 months.

The breakdowns for the turnkey billings for the major sectors are summarised in Tables 4, 5 and 6.

	2nd Quarter 1983	1st Quarter 1983
Software implementation	10.8	9.6
Software products	5.4	6.1
Hardware supply (value of less than £15,000)	10.8	4.8
Hardware supply (value of £15,000-£50,000)	6.9	7.9
Hardware supply (value of more than £50,000)	9.3	14.8
Total	43.2	43.2

Table 2 - Breakdown of turnkey billings by type of product.

	2nd Quarter 1983	1st Quarter 1983	2nd Quarter 1982
Public sector	4.3	5.3	2.5
Private sector	32.3	29.4	14.9
Overseas clients	3.4	5.2	1.6
Associated clients	3.2	3.3	0.8
Total	43.2	43.2	19.8

Table 3 - Breakdown of turnkey billings by type of client.

but, unfortunately, straight comparisons with the corresponding period in 1982 are not possible due to the significant changes which have occurred in the sample during that period.

Some of the figures are also relatively small, and contain a significant margin of error, so that they have to be treated with considerable circumspection. Nevertheless, these breakdowns are useful in assessing the importance of the different components within the public, private and overseas areas.

It is difficult to know the exact size of the market for OEM products, but if one relies on the official statistics for turnkey billings, it is estimated that in 1983, the size of the sector was between £180 to £200 million.

Hardware supplies have been also of great significance, particularly for microcomputers, and their value is believed to have also grown markedly, especially for business systems under £15,000.

For 1984, it is likely that the boom in OEM sales will continue unabated, though any projections for demand are likely to be off-target due to the sharply changing nature of OEM products.

On a conservative basis, however, overall demand is likely to rise to over £250 million, and this market will provide opportunities for considerable expansion, not only for software and service companies but also for the leading computer manufacturers operating in the mini and micro field.

John Aczel is a freelance journalist.

	Billings for turnkey projects	Total billings for computer services
1982	£m	£m
1st Quarter	17.8	169.0
2nd Quarter	14.8	164.2
3rd Quarter	20.5	175.1
4th Quarter	23.1	186.3
1983		
1st Quarter*	43.2	237.2
2nd Quarter*	43.2	231.0

* Figures boosted by bigger sample

Table 1 - Trend in billings for turnkey projects.

	2nd Quarter 1983	1st Quarter 1983
Software implementation	1.3	1.7
Software products	0.6	N.A.
Hardware (less than £15,000)	0.3	0.7
Hardware (£15,000-£50,000)	2.1	0.6
Hardware (more than £50,000)		N.A.

Table 4 - Turnkey billings for public sector.

	2nd Quarter 1983	1st Quarter 1983
Software implementation	6.9	5.7
Software products	3.9	3.7
Hardware (less than £15,000)	10.3	3.4
Hardware (£15,000-£50,000)	5.2	5.4
Hardware (more than £50,000)	6.0	11.2

Table 5 - Turnkey billings for private sector.

	2nd Quarter 1983	1st Quarter 1983
Software implementation	0.6	1.1
Software products	0.5	-
Hardware (less than £15,000)	-	0.1
Hardware (£15,000-£50,000)	0.6	N.A.
Hardware (more than £50,000)	1.7	1.5

Table 6 - Turnkey billings for overseas clients.

Meet the family

Meet General Automation's Zebra family - the first range of micros, minis and superminis to use PICK. Zebra 5500 - top of the range, this born leader beats off all the competition.

Zebra 3500 - a natural Number Two, compatible with all the family.
Zebra 2500 and 1500 - full of ambition, these youngsters could break away and form their own group, but always keep in touch.
Zebra 750 - the baby of the group, but with the same characteristics as the rest of the family.

Like any family, ours has lots of features in common - perhaps more than most. Whatever your size of problem, end user or dealer, here's why you'll want to find out more.

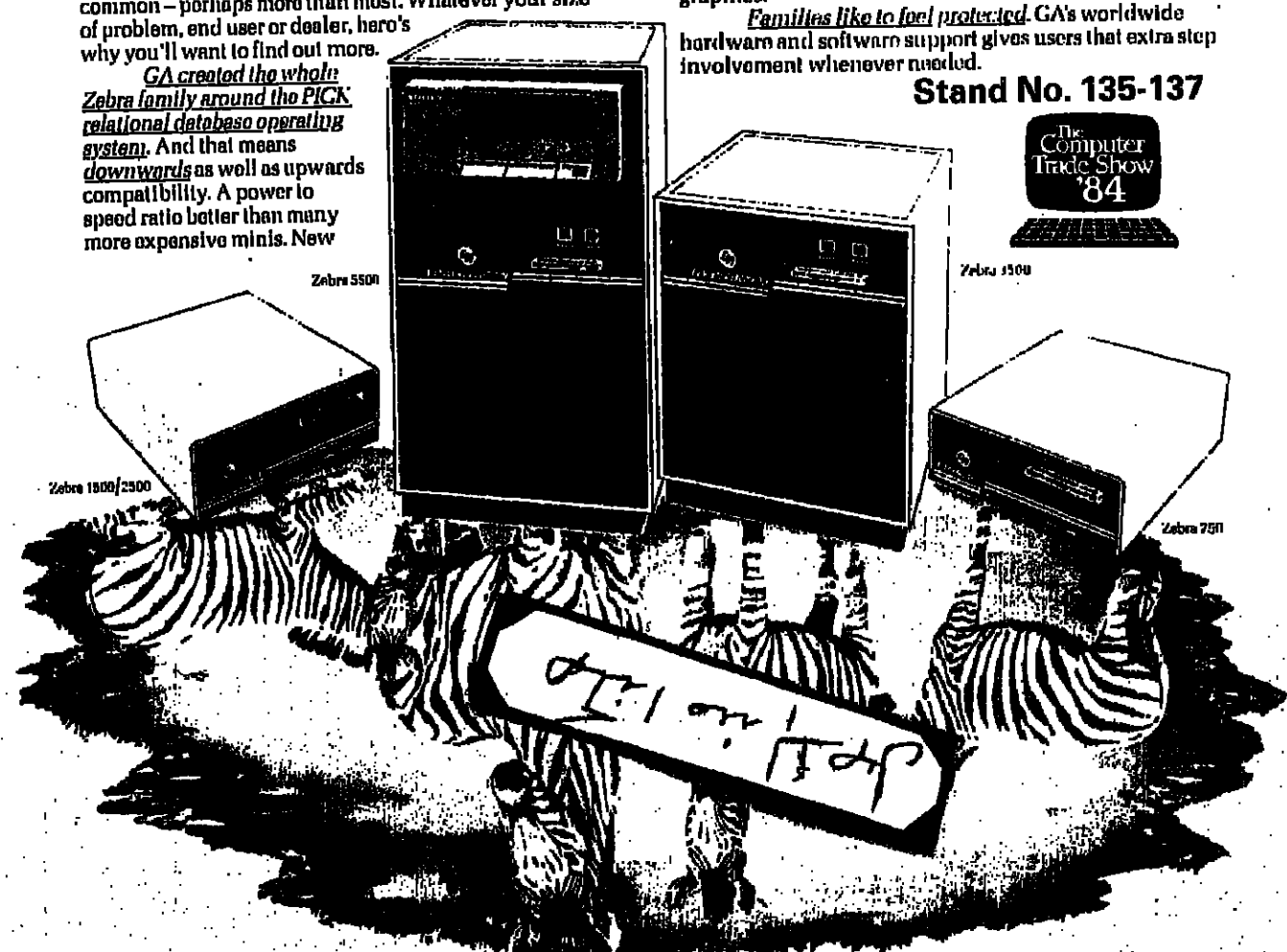
GA created the whole Zebra family around the PICK relational database operating system. And that means downwards as well as upwards compatibility. A power to speed ratio better than many more expensive minis. New

standards of ease of use and friendliness for all users. Families want to talk to each other and their friends. GA are the first to introduce good communications and local area networking on PICK-based products. The family can converse with each other and any other PICK system.

Families have different problems to be solved. Choose from a comprehensive library of installed application packages ranging from accounting to parts explosion, from property management to solicitors records and make use of FREE software tools for system generation, word processing, financial modelling and graphics.

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For a further introduction or an invitation to meet the Zebra family in person, please contact: Marketing Services Department, General Automation Ltd, Sterling House, 20, Station Road, Caranda Cross, Bucks SL9 8EW. Telephone: (0753) 889112



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ELECTION

Most current US presidential hopefuls have learned the value of computers. John Stokdyk reports

Technology goes to the polls

NEW Hampshire's half million electors are spoiled. The state's "first in the nation" primary magnifies their influence. As candidates for US presidents, as current major for the election-year drama, New Hampshire attracts disproportionate media coverage.

Although the scale and timing of the New Hampshire campaign set it apart from the approach taken in the rest of the US, television images of candidates chatting with clusters of dour New Hampshire voters have come to symbolise the American political process.

Walter Mondale's New Hampshire campaign headquarters in downtown Manchester bear all the hallmarks of time-honoured election techniques. Three people are talking on the telephone to local voters, trying to identify Mondale supporters and persuade the uncommitted. Another group writes letters by hand to electors visited the day before by an informal subcommittee of local voters, trying to identify Mondale supporters and persuade the uncommitted. Another group writes letters by hand to electors visited the day before by an informal subcommittee of local voters, trying to identify Mondale supporters and persuade the uncommitted.

Most of the office floor is occupied by two volunteers who are putting three by five inch slips of computer-printed paper into alphabetical order. The task may not be glamorous, but the voter identification forms in their hands are the key element in a well organised and technically sophisticated electronic campaign.

Local campaigners tend to play down the role of technology in elections - they know that New

Hampshire voters enjoy meeting candidates and judging them as individuals. Activists also worry about public perceptions of the latest vote delivery mechanisms, and dread the Big Brother label that is often attached to their methods.

However, Bill Tapella, co-ordinator of Mondale field operations



"Political people are intimidated by computers"

in New Hampshire, is prepared to explain the principles of electioneering in the information age.

"The secret to winning elections is to know who the voters are, and what they care about," says Tapella. "The cards are the heart of our campaign; they are our information sink. When we visit, talk to, or mail voters, it all goes down on the card, so we can track what we do with them."

"With just 120,000 registered Democrats in this state, you have

to go after every individual vote."

Ambitious American politicians no longer build coalition power-bases - they build databases.

The voter identification slips were compiled for Mondale's campaign by Creative Computer Services (CCS), a Dallas-based bureau specialising in computer marketing. Don Ewing of CCS explains that the company uses an IBM-compatible IPL processor equivalent to a Group 2 4341.

New Hampshire voter registration records were merged with local telephone directories held on magnetic tape, and addresses and other information from a database that contains details from the driving licences of 80 million Americans. The slips identify voters by household and are used by volunteers operating telephone banks.

During the New Hampshire campaign Mondale's forces used 40 telephone lines full-time to contact voters in their homes.

Mondale calls up the slips to record voters' candidate preferences, issue concerns and other relevant information, such as supporters who needed help getting to the polls.

By February 28, some New Hampshire voters had been contacted five times.

Carbon copies of the slips went to another DP supplier, American Management Information Systems, which used them to prepare mailings to different voter groups. An undecided Democratic voter, worried about arms control, would probably have received a

letter from Walter Mondale discussing the nuclear freeze.

Each mailing costs two cents a record, plus the price of paper and postage.

Campaigns are short-term organisations with budgets limited by law. They rely on a workforce of temporary volunteers and are ill-equipped to take on large-scale operations, such as compiling voter lists or conducting long-term, direct mail fund-raising drives. These tasks, and opinion research, are usually farmed out to specialists.

Targeted Communications in northern Virginia is a consultancy that administers Mondale's direct mail fund-raising. Targeted's Jim Nathan says that by the end of February the campaign had sent out four million letters at a cost of \$100,000.

"We don't do any of the processing ourselves," says Nathan. "We pick our computer services depending on who can give us the best deal. Some vendors provide lists, another couple may merge and purge them. Still others will supply labels or laser-printed letters. Up to 15 vendors can be involved in a single mailing."

Glenn Cowan, national director of field operations for the Mondale campaign, orchestrated its computer functions. He worked in a similar capacity for the Carter-Mondale campaign in 1980, when he also hired CCS in Dallas.

He explains that the Mondale campaign is less technological than the previous campaign, but that DP operations are more closely integrated with field work.

"We are talking about very simple data," says Cowan. "Our overriding concern is to make sure the information that comes in to us from the field gets back to the people who will use it."

Hanging in a frame above Cowan's desk is his operational motto: "Perfection is the greatest enemy of excellence." He explains his rough and ready approach: "I want to reach one million people with 98% accuracy far more than I want to reach 10,000 people with 100% accuracy."

Political customers also place heavier demands on their DP suppliers. "You have much faster turnaround times," says Ewing of CCS. "You're working in hours rather than days."

Joel Brudshaw is a consultant to surprise winner of the New Hampshire primary Colorado Senator Gary Hart's presidential campaign.

He tells a story about the Hart campaign's main vendor, Voter Contact Services (VCS), of Hawaii: "On Friday evening a few weeks ago our people in New Hampshire called to say that they had 40 volunteers coming in by bus and that they needed canvass cards in Franklin by Sunday."

"It was 2pm in Honolulu when I called VCS and it told me that the key punch tape for Franklin hadn't arrived yet, but it expected it soon. If the tape was in good shape it would take an hour and a half to run."

"Everything worked perfectly and a Hart volunteer picked up the cards at Logan airport in Boston at 4pm on Saturday. That kind of stuff impresses people."

"Political people are intimidated by computers - that's why they need someone like me. I can talk to the technical people and can tell them they go into their sales pitch."

The voters of New Hampshire are probably the most electronically evaluated population in the world. During the recent primary campaign, they were bombarded with telephone calls from various campaigners and received a mountain of computer-generated post.

The effort was intensified, because each of the leading Democratic candidates employed his

own service bureaux and used individually-tailored voter lists.

The Republican party is acknowledged to have a lead over the Democrats in computer-assisted electioneering. Since 1975 the Republican National Committee (RNC) has used an in-house DEC 2060 to compile a national database and to conduct voter analysis on behalf of Republican candidates.

Tom Hofeller, director of the RNC's computer services department, is an expert in demographics. He gained his computer experience advising the Republican party on voting district reapportionments in the early '70s.

As head of computer services since the beginning, Hofeller knows well the pressures on political DP managers. "At any time you are about to be redirected," he explains. "A political organisation like the RNC cannot set its own agenda, it has to be reactive and able to change."

"In a political year a prudent manager would go in with between 30 and 40% of his time committed to ongoing programs, and hold 60% of operating capacity on standby for spur of the moment projects."

Much of Hofeller's work consists of boiling down large amounts of data to manageable sizes for small local races. Some of the RNC's most effective tools are maps which graphically show Republican voting levels county by county. Hofeller comments wryly: "People's appetite for information far outweighs their ability to digest it."

A simple program can then be developed to rank voting precincts according to their "swing" potential. Modern campaigners do not just seek to identify the party faithful, they home in on clusters of uncommitted voters who are likely to respond to finely calibrated appeals from the candidate.

John Stokdyk is a freelance journalist.

The most important contribution of computing to politics has been to facilitate the process of selecting the most fertile areas for campaigns to allocate their resources. Computerised "targeting" is a precise science, based on very simple principles.

Hofeller explains: "The whole idea of politics, besides winning, is figuring out how to win. In theory you're more apt to win if you put your resources to best effect. All computing is for that purpose."

The best indication of future voting behaviour is what happened in the past. The RNC has election returns from races at all levels of US politics on file.

The US Census Bureau makes available a huge amount of its demographic and social data. Names and other personal details are removed, but the files are broken down into neighbourhood-sized units that allow a high level of statistical accuracy.

The targeters cross-check vote levels with social characteristics such as age, sex, income and race, and try to determine what demographic factors bear predicting voting patterns. By incorporating opinion research findings into their calculations, they can pin-point favourable voters even more accurately.

Platt's First Law of Computers: "Whether a computer can do anything useful has always been beside the point. Simply fiddling with the thing is an obsession in itself"

word processing package when it is quicker and cheaper to use a manual typewriter?"

Platt's answer to this is: "Because it's more important to look efficient than to be efficient."

Platt and Langford (Platt is the author, an Americanised Englishman, and Langford states his task as that of translator, removing the barbarisms like "gotter", "fucker" and "Reagan") approach the computer with healthy cynicism, common sense, and humour.

Although aimed at the comput-

ing novice, *Micromania* makes fascinating reading for DP professionals who might consider such a book beneath them. It opens by debunking Charles Babbage as a typical computer freak who spent 35 years labouring over his analytical engine when he could have solved the mathematical problems had he designed the machine to perform in a fraction of the time, at a fraction of the cost, by using pencil and paper.

Platt's First Law of Computers: "Whether a computer can do anything useful has always been beside the point. Simply fiddling with the thing is an obsession in itself"

There are a further 14 laws dotted throughout the book, each of them a gem. Law 12 is: "The problem with word processors is that you spend half your time thinking about how to use the program, instead of thinking about what you're actually typing."

Forget all the euphoria about computer graphics too: "Pictures on video screens are ugly, crude and garish, so they're called graphics, which sounds more impressive and avoids embarrassing comparisons with real pictures. Bit-mapped graphics are hell to program, take forever to print, and really aren't very useful."

I cannot recommend this book too highly. Every sacred cow of computing, including computer magazines, is dealt with mercilessly.

It is the only computer book I have read in a single sitting, all 184 pages of it, and it should be available on the National Health.

Andrew Thomas

Security IFIPSEC 1983. Edited by V. A. Fak. North-Holland.

PROCEEDINGS of the First Security Conference held in May 1983 in Stockholm are reported in this North-Holland publication.

The 44 papers presented have an average coverage of six pages each. As a result, many are rather too superficial or irrelevant.

As a security practitioner, I was looking for material which is both of practical value and at the same time presents the subject with sufficient depth and insight. The result of my search was rewarded by some 11 papers, or 25% of the total.

The area on access control of computer systems was particularly well covered, ranging from guidelines for installing access control

packages to the design of secure systems, all well researched.

Next comes cryptography and its use and two papers provide interesting details, on key management and the use of the transaction seal for securing terminal systems.

I enjoyed the paper on the impact of microcomputers on total computer security, which discussed the various practical problems and possible solutions in various aspects of security.

I was a little less impressed with papers which were too brief and superficial or too academic and theoretical to be of any practical value.

Ken Wong

John Kavanagh

BOOKS

Slaughter of computing's sacred cows

Micromania: The Whole Truth about Home Computers. Charles Platt with David Langford. Published by Victor Gollancz, £7.95.

THANK God for sceptics. If I had a pound for every book in which the author allows himself to be carried away on a rose-tinted tide of enthusiasm for the wonderful world of computers, I should now be quite wealthy.

Micromania asks all the questions that computer people choose to ignore, such as "Why bother with this impossibly cumbersome

Platt's First Law of Computers: "Whether a computer can do anything useful has always been beside the point. Simply fiddling with the thing is an obsession in itself"

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Superficial security

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Gloomy view of future

1984 and after: Changing Images of the Future. Nigel Calder. Century Publishing, London, £9.95.

NIGEL CALDER presents a view of the world in the mid-eighties, made up of three elements: the first is an assessment of the accuracy of predictions made in 1984 by 100 scientists, scholars and leaders of industry in *New Scientist* magazine, of which Calder was then editor.

The second is the reporting of the current state of work on everything from genetic manipulation in space exploration and weather control. And the third is the opinions of the author, a writer with a scientific background.

As a result the book is often witty in style. This is not helped by the contrived, dialogue form: the entire volume is taken up with a conversation between the author and a computer called O'Brien, the Omniscient Being Re-Interpreting Every Nation.

O'Brien is also the name of the villain in George Orwell's novel *1984*.

The success or failure of the book therefore rests largely on the reader's interest in the author's opinions and the accuracy of 20-year-old forecasts; this reviewer found these elements irritating - only partly relieved by the factual information on the state of the world.

The book is certainly comprehensive in its look at the world, with chapters on the broad topics of ecology, the Third World, biological research, automation and nuclear weapons. In most of these areas the author's cheerful style cannot hide a depressing picture of humanity.

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MARKET PLACE

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6234 50MB Whisk S/S
60404 Decher IP1
60216 Single Deal Mode MTU
Comms Chassis ALM's AT1
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ARE WE ASKING THE IMPOSSIBLE?

We urgently need a software package for a large residential college (1,000 pupils, 300 different courses, 2,000 courses staged each year, 150 instructors) in the UK.

The package must support: course bookings; student enrolment; resource allocation (teachers, rooms, equipment, etc); accommodation (900 rooms); bookings; time-scheduling; financial control and management. It will also need facilities to interrogate the database for operational and management statistics and reports regarding all students, staff and course details; b) room and equipment usage.

As if that wasn't enough, an easy to use query language for ad hoc interrogations is essential as is the ability to tailor the package to precise requirements, supporting that software and provide user training. Naturally, we expect your product to be well-proven and detailed demonstrations in an operational environment will be sought.

We know this is a lot to ask, but if you think you have something suitable we'd like to hear from you. Please write, giving full details of what you have to offer by Monday, 19th March, 1984, to: Nigel Avery, Room A03, 62 Commercial Road, London E1 1NR.





Autoprocess consists of a 35mm camera mounted in a hand-held hood.

Hand-held hood aligns camera

COLOUR slides of information displayed on terminal screens can be made using Graphic Display Systems' new GDS-1000/35mm Autoprocess.

The system consists of a standard 35mm camera mounted in a hand-held hood. The hood correctly aligns the camera to the display and eliminates screen reflections caused by ambient light. It thus eliminates the need for tripods, blackouts and so on. The company says the system can be used by people with no technical or photographic expertise.

The system uses the new 35mm film from Polaroid. It can be developed in minutes in the desk-top Autoprocessor.

Three films are available: a colour film for high-resolution

Display of eight colours

A COLOUR graphics hardware and software package for most 16-bit microcomputers has been launched by Magus Computer Systems.

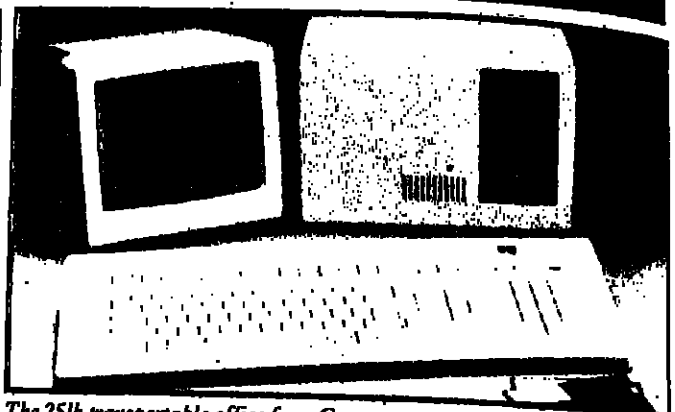
The system consists of an external box, an interface card for the microcomputer and a colour monitor. The interface is not needed for the IBM Personal Computer and Future FX20.

The resolution from the package is 768 picture elements by 512. Eight colours can be displayed from a palette of 4,096.

On the software side modules include a graphics editor, with graphics functions called up from the keyboard. A built-in symbol generator enables users to create their own libraries of graphics symbols.

A business graphics module produces bar charts, line graphs and pie charts.

Magus Computer Systems (CW), First Floor, 4 Cheap Street, Bath BA1 1NE. Tel: (0225) 60965.



The 251b portable office from Compucorp.

Office range extended

The OmegaMite and the OA3200, are extensions to the Compucorp office automation product range.

The OmegaMite provides full Omega word processing, CP/M compatibility and an OmegaNet local area network interface in a transportable package. The OA3200 is a cluster controller for the range of Compucorp workstations.

OmegaMite weighs under 25 pounds and with its amber screen and full-size professional keyboard can be packed into its own carrying bag for transport to a branch office. It runs Omega word processing, Compucorp's own MultiCalc spreadsheet package and DBMS database software.

In its standard configuration OmegaMite will run CP/M.

The OA3200 processor provides a clustered alternative to an OmegaNet local area network with its ability to support up to 32 devices operating under a Compucorp version of the Xenix operating system. The second application of the OS3200 is as a powerful file, mail and print server supporting up to four connected Compucorp OmegaNet networks.

Compucorp (UK) (CW), Cunningham House, Westfield Lane, Kenton, Harrow HA3 9ED. Tel: 01-907 0198.

Portable laser bar code reader

INTERMEC UK has announced a portable laser bar code reader based on the latest CMOS technology. The Model 9420, intended for use in industrial, commercial and military applications, is provided with Intermecc's Interactive Reader Language (IRL), a software package which simplifies the development custom application programs.

The reader has a two-line 32-character display which allows the simultaneous viewing of operator prompts and scanned data. The display is easily read in direct sunlight, and a back-lighting feature allows reading even in total darkness, according to Intermecc.

The design of the alphanumeric keyboard is such that error-free keying is possible even if the user is wearing industrial gloves. The keys are large and wide spaced, and there is an edge-illumination on each to prevent mis-keying through finger slip.

The use of CMOS means the unit is light in weight and can run a full eight-hour shift on its internal batteries. CMOS RAM allows data retention while the unit is switched off.

The Model 9420 is used in association with the Intermecc Model 1600 laser scanner (or with a contact wand scanner). The 1600 allows reading with up to 25cm between the scanner and the subject label. All scanner components are shock mounted and an impact absorbing rubber strip surrounds the housing.

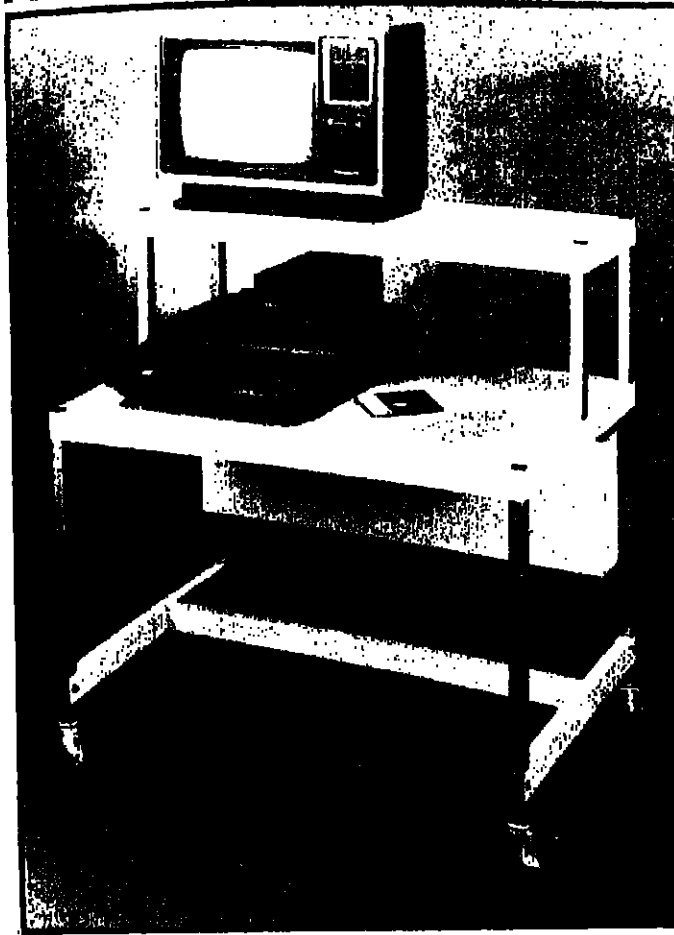
The laser window is recessed to prevent damage and the housing is sealed to prevent ingress of rain.

Intermecc UK (CW), Studio House 215 Kings Road, Reading, Berks. RG1 4LS Tel: (0734) 67331.



The 9420 laser reader.

PRODUCTS



The mobile workstation from Elf.

Put your work station on wheels

A MOBILE work station with nine square feet of working surface on a floor area of only six square feet, capable of accommodating a complete mini computer-VDU system with room to spare for the user's documents, has been launched by Elf-Bretford.

Both working surfaces - one 27 inches high for typing, and one upper VDU shelf normally at the user's eye level - are fully adjustable, the modesty panel doubles as storage for connecting leads and cables, and four jumbo castors - two with brake locks - ensure easy mobility from one office area to another.

Constructed in heavy gauge steel and finished in chrome and dove grey, the mobile work station is supplied flat for easy self-assembly, and costs £145 inclusive of VAT and delivery.

Intended for offices and normal commercial applications, the degree of height adjustment makes them suitable for use with children which makes them suitable for educational applications.

Growth in the use of home computers, which have to be mobile for ease of storage when not in use, is liable to be a further market.

Elf Audio Visual (CW) 836 Voovil Road, Trading Estate, Slough SL1 4JG. Tel: (0753) 36123.

Quest is over for business micro sub-system

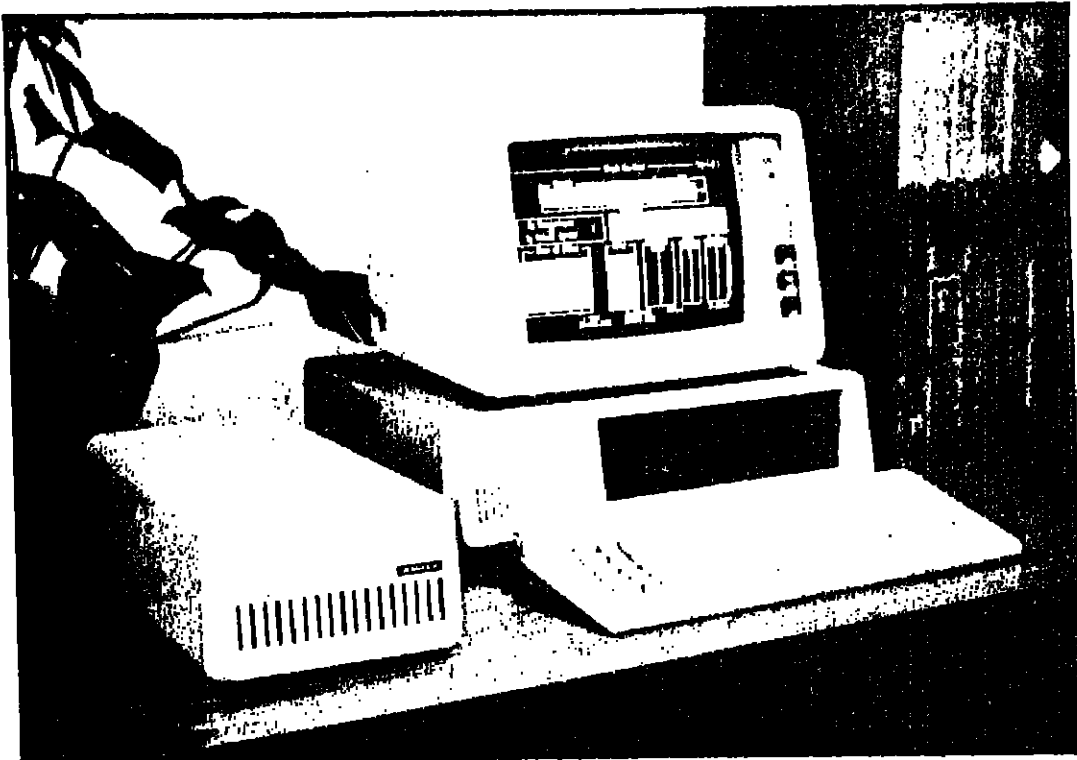
QUEST International Computers has announced the availability of the new Ampex Pyxis 5 1/4 inch Winchester sub-system which is designed for use with a wide range of business microcomputers.

Interfaces are available for Apple, DEC, IBM and Intel Microsystems, and software is also supplied to ensure efficient operation and compatibility with the host computer, says Quest.

The sub-system is available in a range of colours.

The Pyxis offers fast data access time and a data transfer rate of five Mbits per second. It is available with five, 10 or 20 Mbytes' formatted capacity which means that the smallest version can replace up to 40 floppy discs. The capability can be increased by the addition of higher capacity discs or up to two disc drives, says Quest.

The system has been designed to provide the utmost efficiency and reliability, consequently no maintenance is required. The essential major assemblies are housed in an attractive case which can be easily



The new Ampex Pyxis Winchester sub-system for business micros from Quest.

transported without risk of damage to the media since the built-in spindle and stepper motor locks operate automatically when power is switched on or off.

An important feature of the Winchester head/disc assembly is its construction. It is located in two isolated chambers which incorporate a closed loop re-circulating air system for protection.

Quest International Computers (CW), School Lane, Chandler's Ford, Hampshire SO5 3YV. Tel: (04215) 66321.

HOW TO PROTECT YOURSELF IF YOU BUY THE WRONG DBMS.

(Cut out dog, stick on office door. It may hold your management at bay.)

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design can also be utilised by a single CMS user on their virtual machine. And that facilitates system administration and high-speed database loading. In addition, you can have a native CMS copy of MODEL 204 and a copy of MODEL 204 running under a guest operating system on the same machine. And both can utilise the same database. A CMS user can also communicate with the copy of MODEL 204 on the guest system using VMCP.

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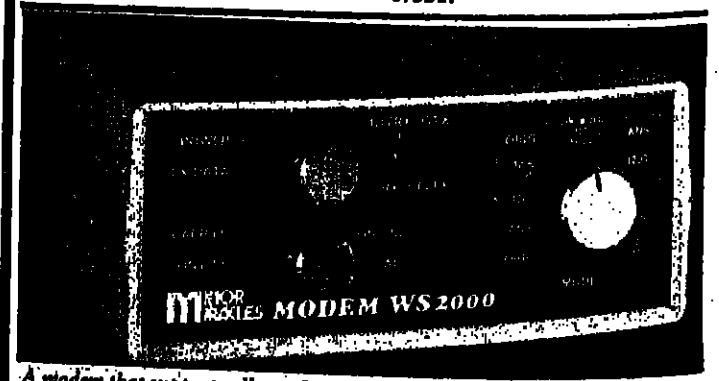
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A modem that supports all standards.

A modem for all standards

ALL major world communications standards are supported by the new £99.95 WS2000 modem from Minor Miracles.

The unit can be switched between 300 baud full-duplex, 600 baud half-duplex, 1,200 baud half-duplex and 1,200/75 baud full-duplex and supports Bell standard and supports Bell standard and CCITT standards for Europe.

These standards include Bell 103/113/106, Bell 202, CCITT V21 and V23 and RS232C/CCITT V24 handshaking, FSK, DTR, DCD, CTS, with FSK and full digital signal processing and filtering.

Interfacing for home computers with no RS232C are also available.

Special facilities include reverse 1,200/75 baud operation, so the WS2000 can communicate with dedicated videodata terminals.

Options include an auto-dial and auto-answer board which costs a total of £39.

The WS2000 can be supplied as a package or to systems builders as a board with RS232C interfacing.

The company says that with its "very full" documentation and design, the WS2000 is as easy to use with a BBC or Tandy microcomputer as with an IBM Personal Computer.

Minor Miracles (CW), PO Box 48, Ipswich IP4 2AB. Tel: (0473) 50304.

X-Data launches new daisywheel range

X-DATA's new range of Dwyer Daisywheel Printers has just been launched. The DW16 is an entry-level printer and the DW20 and DW36 offer the speed and power for higher volumes.

The DW16 prints bi-directionally at 16 cps over a 10-inch print-line with pitch at 10, 12 or 15 characters per inch. Paper width is 12 inches, paper feed is two inches per second and interface is RS232C serial or Centronics parallel.

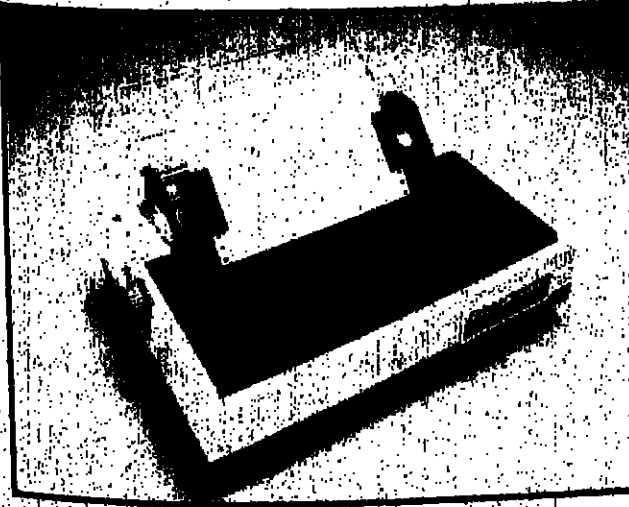
The DW20 and DW36, printing at 20 and 36 characters per second respectively, both have a print-line of 13.2 inches on paper up to 17 inches wide. Models are available with parallel or serial interfaces, and an optional cut-sheet feeder can be supplied for both machines.

All three printers will provide an original plus three copies, with carriage spacing of 120 positions per inch and line feed of 1/48 inch (0.53mm).

Paper feed systems can be friction or tractor, and Meantime Between Failures is given as 2x10⁶ actions.

X-Data is a firm of equipment wholesalers selling computer equipment to technically self-sufficient users, suppliers and dealers on a true wholesale basis.

X-Data (CW) 750-751 Deal Avenue, Slough Trading Estate, Slough, Berkshire SL1 4SH. Tel: (0753) 72331.



X-Data's DW16 Daisy Printer.



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For further information contact: Marketing Services, Cincom Systems (UK) Ltd., St. Ives House, St. Ives Road, Maidenhead, Berkshire SL6 1QS. Telephone: Maidenhead (0628) 72731

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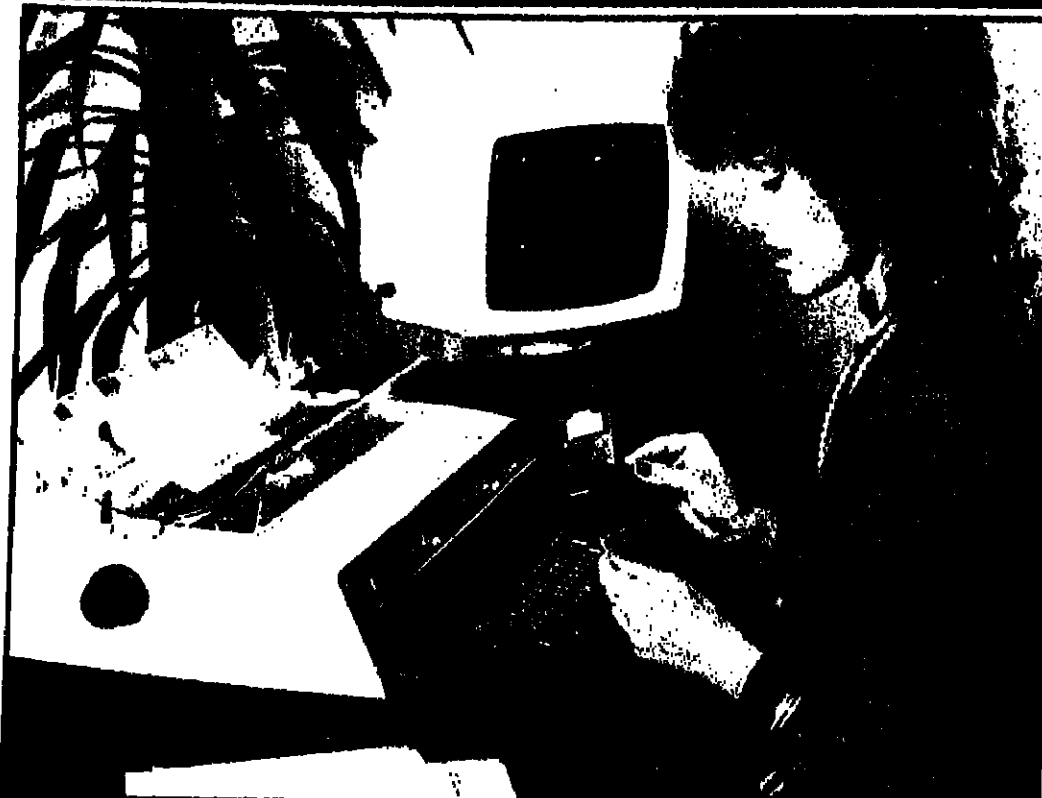
Typewriter keys access screen logically

HERMES Precisa (UK) has launched the top-ionic 21 and top-ionic 51 typewriters with 24 line x 80 character screens.

Typewriter/screen systems need to access the screen from the typewriter keyboard, which means that certain keys have more than one function. As with all Hermes memory typewriters, these additional key functions have been designed to operate in a logical manner, eg key E is used for edit; M for mark; T for transfer; C for copy; etc.

Screen memory capacity of 32,000 characters is available on both new video units. The top-ionic 51 retains the 24in microdisc, though the disc reader has been modified to read and write in a double-density manner, giving each disc 32K of storage.

The top-ionic 51 allows the typist to use the system in several modes - as an ordinary typewriter; as a memory typewriter with 101 memory segments; as a traditional external storage type-



Top-ionic typewriters can be used in several modes.

writer; or as a typewriter with sophisticated folder/document storage via the screen. Several discs can be read into the screen unit, each disc accounting for a "folder"

containing one or more documents. The top-ionic 21/Video typing system costs £1,695 plus VAT, and the top-ionic 51/Video is

priced at £2,795 plus VAT. Hermes Precisa (UK) (CW), Hermes House, Ipswich Road, Colchester, Essex. Tel: (0206) 843251.

Move up from Fortran with ease

COMPUTER Technology Limited (CTL) has introduced Momentum Fortran 77, an advanced implementation of the ANSI Fortran standard. Momentum Fortran 77 fulfils the complete ANSI Fortran standard X3.9 (1978), with the exception of an amended backspace facility. It offers facilities for programs with segmented structures, and an efficient and flexible system of compiling and listing.

The compiler allows for segments of up to 32K, and enables the user to segment a program as required, while supplying the additional option of automatic segmentation. Data access has been extended to allow access to the full range of DMS file handling facilities, and Fortran 77 programs can be used with the DMS fast recovery option.

A conditional compilation feature enables a debugging code to be placed in programs for testing, while allowing it to be excluded from the final compilation. To complement this, the compiler can optionally embed trace routines in the generated program, so that the logical flow through the code can be followed.

The compiler can also optionally generate map and cross reference listings, and these facilities allow for quicker and easier testing of Fortran 77 programs.

The compiler also allows users to have integer within Fortran programs held in either one or two words, which gives high precision without causing a performance degradation for simpler programs. The compiler can generate code to exploit fully the features of CTL's Momentum 9000 computers with extended architecture. This results in considerable performance improvements, particularly for real, double precision and double word integer arithmetic.

There is also an option to run the compiler in a Fortran IV mode, which allows it to compile Fortran programs written for the Momentum Fortran IV compiler. This lets the user make an easy progression from a current Fortran system to a Fortran 77 system, while giving immediate performance gains if the Momentum 9000 extended architecture.

Computer Technology Ltd (CW), Hempstead House, Solihull Hill, Hemel Hempstead, HP1 1DP. Tel: (0442) 3288.

PRODUCTS

Raster range aims at higher education

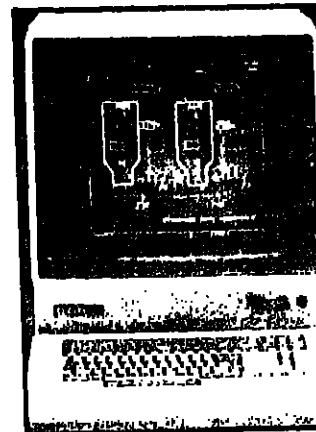
IMLAC International has announced a complete range of raster graphics display systems to complement its Series 11 vector refresh terminals.

The new range will be promoted in the university and higher education sectors, and is to be known as Imlac-Scapra. It includes a range of both monochrome and colour terminals all offering features such as vector generators, selective erase and 4096 x 4096 addressable points with varying display resolutions.

Modest application requirements are served by the IS741, a 15in display with 512x512 pixel resolution. The IS770 offers a 15in screen of 640x480 displayable points with up to four graphics pages and is capable of true alpha-numeric operation with four character sets and a range of features such as underline, blinking, inverse video and selectable scrolling. Higher quality requirements

are met by the IS1020 featuring a 1024x1024 interlaced display. For colour there is the IS550 for low-cost interlaced 640x480 point viewing on a 14in screen and the IS870 on a 20in screen. Both terminals feature 16-colour, two-page performance which will draw at a microsecond a point in absolute, incremental and point to point mode.

At the top of the range is IS1096 which produces images on a 1024x780 display with up to 16 colour shades from a palette of 4096 possibilities. All the Imlac-Scapra terminals are micro-driven and have considerable internal intelligence in their firmware. They can be addressed down line or through the standard slimline detachable keyboard. A light pen and tablet are available as optional input tools. In workstation configurations, a monochrome one-up and two-up 84x84 dot per inch graphics printer can be



The IS850 from Imlac.

supplied while for the colour systems, screen images can be presented on eight-colour hard copy. With the addition of the Imlac-Scapra products, Imlac International now claims to offer the widest choice of all the CAD/Research applications graphics terminal vendors. The Amersham based company caters for needs ranging from 512 point raster to 2048 line vector at prices from £1,800 to £15,000.

Most software is available for developers wishing to link their applications program through G-LIB (raster) and RGS (vector). Imlac International (CW), Imlac House, 17 Chesham Road, Amersham, Bucks HP6 5HN.

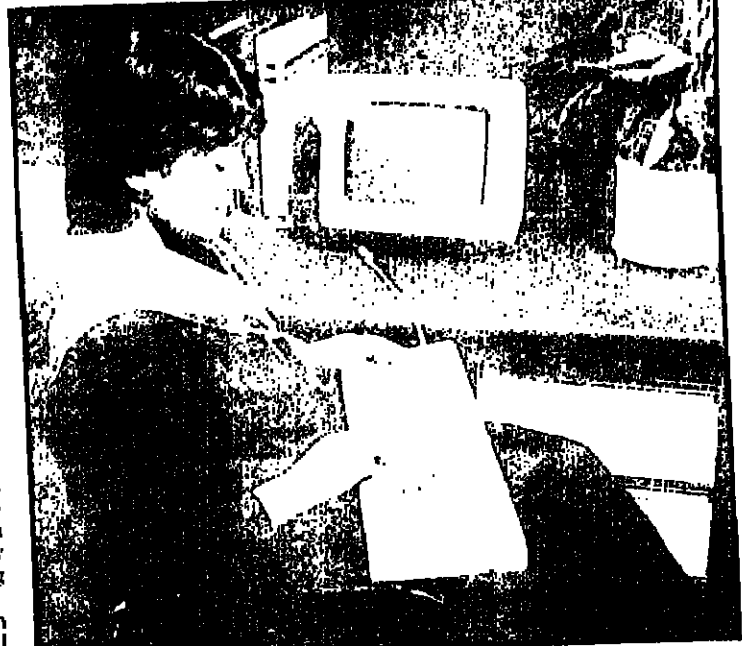
Terminal with lightweight keyboard

THE VT220, a monochromatic video terminal from the VT200 range, the latest family of monochrome and colour terminals by Digital, is now available from Rapid Terminals.

The VT220 features a swivel-tilt 30.5cm non-glare video screen with an 80 or 132 column by 24 line display, connected by a 1.8m coiled cable umbilical to a new streamlined keyboard weighing 2.04kg.

The lightweight keyboard can easily be placed in an ideal working position and the 30mm key height reduces typing fatigue, says Rapid Terminals. At each switch-on the terminal automatically performs a self-test and gives an audiovisual assurance.

The board layout contains 105 keys and consists of a standard query keypad, with a 10-key editing keypad to the right and an 18-key numeric keypad beyond that. The whole board measures 53.3 x 17.1 x 5cm.



The VT220 has a keyboard weighing 2.04kg.

The VT220 is equipped with VT52/VT100 emulation, built-in serial printer port, and 15 European modem controls. In addition, the terminal features international capabilities including multinational character set, keyboard layouts available in 15 languages and a universal power supply (switch selectable).

The VT220 is designed for data communications and can operate at speeds up to 19.2K baud. It supports full duplex asynchronous communications with ten possible transmit/receive speeds.

Rapid Terminals (CW), Rapid House, Denmark Street, High Wycombe, Bucks HP11 2ER. Tel: (0494) 26271.



Momentum Business System runs on CTL's Momentum 9000.

Business system gives Momentum to users

A NEW business software system, the Momentum Business System (MBS), from UK software house J. G. Systems, offers users a complete suite of fully integrated business software running on CTL's non-stop Momentum 9000 minicomputer range.

According to J. G. Systems, the Momentum Business System combines for the first time the cost advantages of packaged program products, with fully integrated transaction processing and the extensive communications capabilities of one of the world's most advanced minicomputer ranges.

The new system also offers the option of resilient non-stop processing and an easy upgrade path, starting from a two-terminal entry-level configuration up to the full power of CTL's dual processor

Model 33 superminicomputer running in excess of 100 terminals. Momentum Business System includes software packages for sales order processing, stock and purchasing, financial accounting, financial modelling, time recording, payroll, customer mailing and letters and a word processor called TVtype, as well as many other industry-specific packages.

The cost of the MBS system pack is just £2,000 for a single user system including two days' free training. The MBS package increment is £300 a VDU. The software is fully supported and the annual maintenance fee is 10% of the cumulative licence fee paid.

J. G. Systems (CW), Ting House, 77-81 High Street, Tinge, Herts HP23 4AL. Tel: (044 262) 6671.

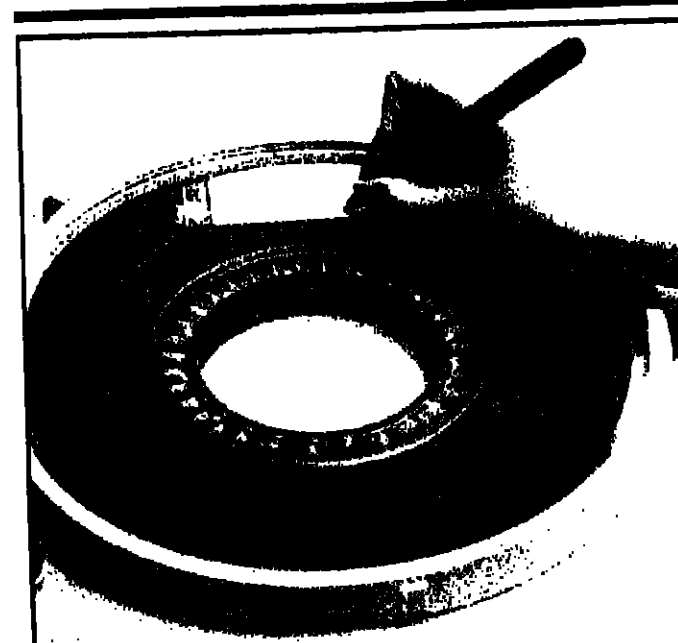
Using printers in telegraph

AN interface developed by Siemens for the PT88 printer will enable the printer to be used in five-unit telegraph systems.

The PT88 gives the user a choice of needle impact dot matrix print head or an ink jet head that is silent in operation, says Siemens. The new interface, the PIA No 1, enables the PT88 to be used either directly on a five-unit private wire telegraph connection or on a message switching or

similar system. By use of special strap selection, speeds from 50 to 600 bauds can be accommodated. Line voltages/currents options from RS232 through to 80V 20mA are available.

The PIA No 2, available around July, will allow the printer to be connected to telefax lines. Siemens (CW), Siemens House, Windmill Road, Sunbury-on-Thames, Middlesex TW16 7HS. Tel: (09327) 85691.



Butterfly Data Wipers from Wiggins Teape.

Re-usable data wipers

WIGGINS Teape Stationery is introducing a range of re-usable data control labels, marketed under the Butterfly brand as Data Wipers.

Designed for titling or labelling all magnetic media where the stored information is changed regularly, Butterfly Data Wipers are self-adhesive labels which may be wiped clean and used again. The labels are supplied with a special Wipers pen and skin-packed on to a backing card with instructions and details of the range.

When required, the written information is removed completely by applying a moist tissue - and new information substituted.

For use with disc cartridges, disc packs and magnetic tapes, there are plain or colour coded data control labels, file labels with boxes for supplying file number and data and yellow Hold labels to indicate semi-permanent information. Wiggins Teape (Stationery) (CW), Grove Road, Chadwell Heath, Romford RM6 4XL, Essex. Tel: 01-590 7777.

Storage up, prices down

ZENITH Data Systems has announced enhanced storage capacity and price reductions of up to 13% for its Z100 range of desk-top microcomputers.

New models with increased storage capacity have been introduced to the Z100 range. The ZF-100-20 flexible disc system has a storage capacity of 1.28 Mbytes which doubles the capacity of existing flexible disc models. A new 11.7 Mbyte Winchester drive model with a back-up capacity of 640Kbytes is introduced.

Prices now start at £1,795, including a range of free software options. The ZF-110-22 low-profile flexible disc system with a storage capacity totalling 640 Kbytes has been reduced from £2,376 to £2,295.

Zenith Data Systems (CW), Bellhol Road, Gloucester GL2 6ER. Tel: (0452) 29451.

Laser-based data link

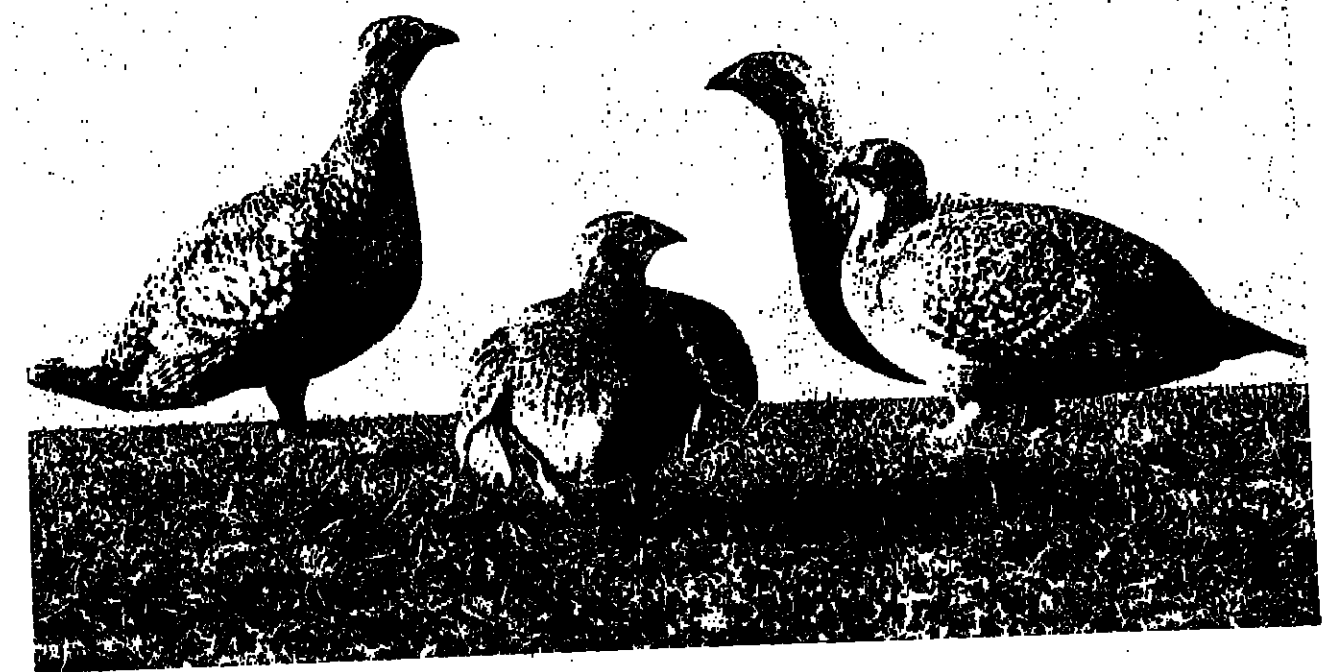
A LASER-BASED data link for outdoor applications which is claimed to have significant advantages over existing free space systems, has been developed by EEL.

Called Superlink, it returns high reliability figures over free space distances of up to 1km and has high bandwidth making it suitable for transmitting and receiving, in addition, to data and speech, CCTV picture signals and control information, says EEL.

The high bandwidth also enables the link to be configured for multiplexed data channels.

Signals can be sent and received by either end of the link via 1km fibre-optic link.

EEL (CW), Kings Building, Castle Street, Cowes, Isle of Wight PO32 6RH. Tel: (0983) 291515.



Stop grouching about the lack of computer expansion capability - one company has quietly introduced the solution...

intel system 310

Intel - the undisputed world leader in microprocessor VLSI have introduced a range of high performance 16 bit OEM microcomputer systems. Based on Intel's 'Open System' concept, System 310 offers OEM's a route to future applications and new markets through incorporation of industry standards such as MULTIBUS, 8086 and RMX. Four System 310 configurations for high speed real time applications and interactive multi-user commercial and technical environments are available from Comway.

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Support Programmers

The Computing Division of the Rutherford Appleton Laboratory provides a service for SERC sponsored researchers in Universities, Polytechnics and SERC Establishments. File handling and program development facilities are provided to this large user community through IBM's VM/CMS operating system running on an IBM 3081D. An ICL Atlas 10, currently running MVT/HASP but shortly to be converted to MVS/JES3, provides the main data processing power.

Interactive facilities, mainly in the graphics and database areas, are provided by a network of PRIME, GEC and VAX mini-computers sited at the Laboratory and at a number of Universities in the UK.

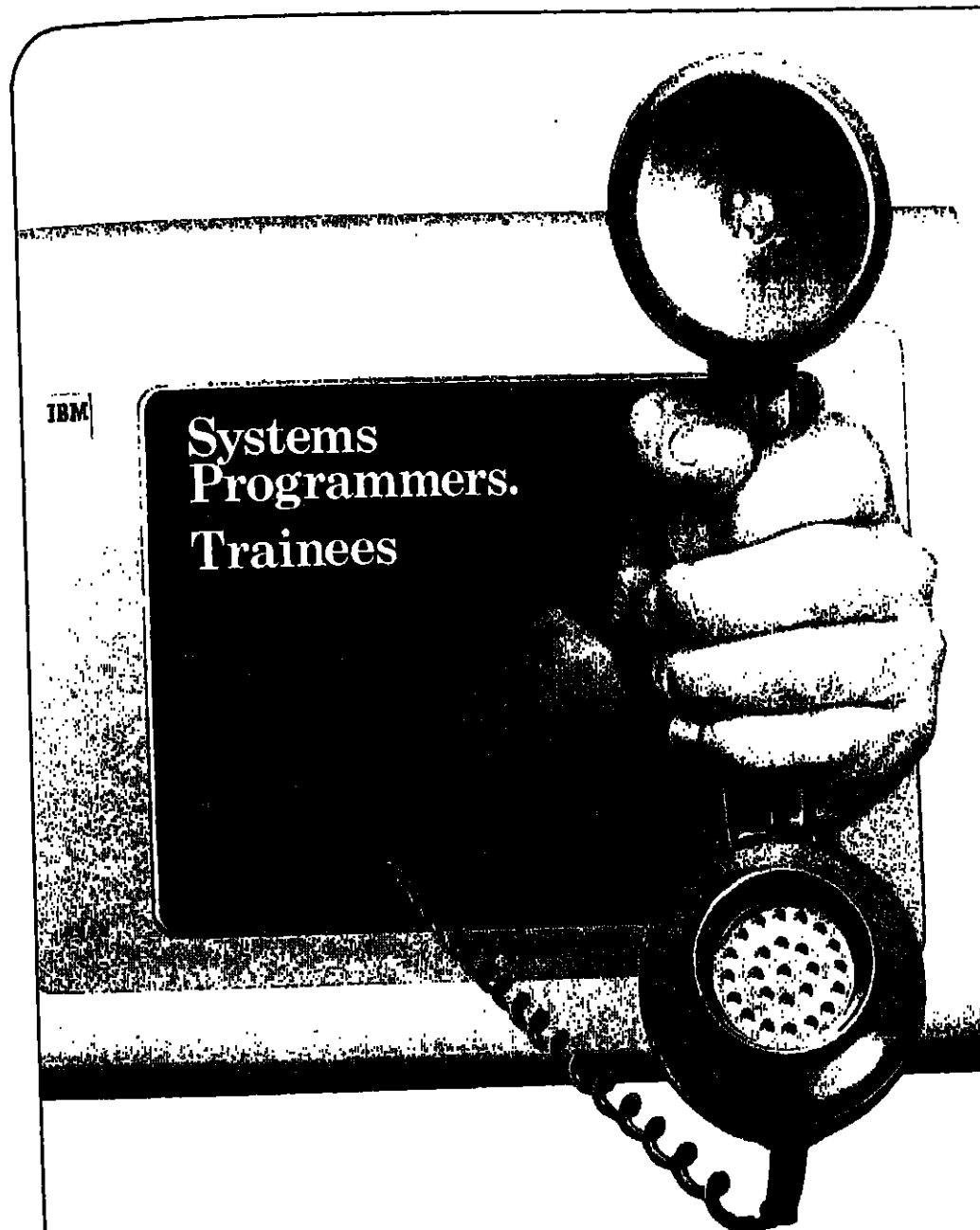
Vacancies exist for support programmers in the User Support Group. Support programmers are required to provide user support of the VM/CMS and of MVS/JES3. Duties include liaising with users, offering advice and guidance with problems, documentation, user education and implementing utilities. Applicants should have skills in Technical Communication, a broad knowledge of computer systems and some programming experience preferably in FORTRAN. Familiarity with VM/CMS or MVS/JES3 operating systems would be an advantage.

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Call Mark Evans or Jim Fry anytime between 11 a.m. and 4 p.m., Sun. 11th - Tuesday 13th March, quoting ref: 5800.

Warwick Tel: (0926) 32525
Call John Evans anytime between 11 a.m. and 4 p.m., Sunday 11th - Tuesday 13th March, quoting reference 5800.

Greenford Green Tel: 01-578 9343
Call John Hayes anytime between 11 a.m. and 4 p.m., Sunday 11th - Tuesday 13th March, quoting reference 8000.

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We also require ambitious young people, with good degrees, or equivalent, who are keen to make IBM their first step into this exciting, fast-moving industry. You will learn the fundamentals of our advanced processor data storage and network systems. Our extensive training

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Call Derek Dent anytime between 11 a.m. and 4 p.m., Sunday 11th - Tuesday 13th March, quoting reference 4800.

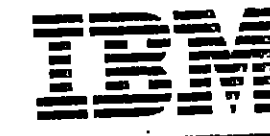
Greenford Green Tel: 01-578 9343
Call Howard Davies anytime between 11 a.m. and 4 p.m., Sunday 11th - Tuesday 13th March, quoting reference 8001.

So, if you're looking for career development, an excellent salary and a range of valuable benefits, this unequalled opportunity has to be for you.

If you are unable to phone on any of these days, write for an application form to:
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Ref: - W/171

SYSTEMS ANALYSTS

Ref: - W/172

PROGRAMMERS

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The Fellow will research the application of Information Technology in the field of land management. Applicants should be qualified as surveyors or planners and have worked with computers in professional practice; or have an initial training and postgraduate experience in business applications of computers.

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Further particulars and application forms (two copies) are available from the Personnel Office, University of Reading, Whiteknights, Reading RG6 2AH (Ref. R2A). Closing date March 14, 1984.

(7805)

ANALYSTS & PROGRAMMERS

AN OUTSTANDING OPPORTUNITY TO MAKE A MEANINGFUL CONTRIBUTION TO AN ADVANCED IBM DEVELOPMENT PROJECT IN OXFORDSHIRE

THE COMPANY

Our client provides one of the fastest and most comprehensive back-up services to vehicle users around the world. A powerful sense of urgency runs right through the organisation. And at the centre of activity is the Management Services Division with a 16Mb IBM 3083 running under MVS/XA, soon to be supporting hundreds of micros and intelligent terminals. The introduction of the latest technology is actively encouraged and the company already uses Laser Printers, COM Fiche and Voice Response equipment.

THE AREA

Oxfordshire is a pleasant, rural part of the country with many, many attractions to suit all tastes. An unusually good relocation package includes the reimbursement of normal legal and selling expenses, a generous disturbance allowance and temporary accommodation expenses. Mortgage interest assistance may also be available to help those moving from lower cost housing areas.

SOME DATES TO REMEMBER

The name of the game is high speed response. Phone us, write or fill in the coupon. Please quote ref. no. 437. Or better still, call in and have an informal talk with us at one of the following locations.

LONDON - Tuesday, 13th MARCH (12 Noon - 8pm) at A&A Consultants (Holding) Ltd, County House, 10 Little Portland Street, London W1. Tel: 01-631 4184.

MANCHESTER - Wednesday, 14th MARCH (12 Noon - 8pm) Midland Hotel, Peter Street, Manchester.

LIVERPOOL - Thursday, 15th MARCH (12 Noon - 8pm) St. George's Hotel, Lime Street, Liverpool.

THE POSITIONS

The positions our client is seeking to fill cover the broad spectrum of systems development. The successful candidates will make a major contribution to what is a very large development programme.

YOUR EXPERIENCE

An IBM background is a must supported by at least 2 years' experience of PL/I or COBOL, in a DOS or MVS environment ideally with experience in the use of CICS, IMS/DB DC or DL/I.

YOUR FUTURE

The Division is growing fast. This means early opportunity for promotion to a Project Supervisor role which carries the benefit of a COMPANY CAR.

Name: _____
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A&A

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DPCE

(8260)

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This means that we thoroughly understand the career requirements of Software Engineers—and can accurately match your skills with current vacancies.

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- Data Base Techniques • CAD/CAM
- Data Communications
- Real Time Applications
- Microprocessor Development Systems

Opportunities exist in a variety of industries including computer and electronic manufacturing, defence, oil and offshore service companies, as well as specialist software consultancies.

So, if you are interested in the opportunities we offer, we'll be more than interested to speak with you. Contact CAROL SUTHERLAND or BEN WILLIAMS and they'll tell you how you can apply your skills to some of the most innovative work in Scotland.

PERSONNEL CONSULTANTS

Victoria Chambers, 42 Frederick Street, Edinburgh EH2 1EX.

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Locations: London Midlands Manchester

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Berk.

ICL/COBOL to £12K
Notts

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Minimum one and a half years' experience
Northants/Lancaster/London/N.E.

SYSTEMS PROGRAMMERS MVS CICS to £17K
Midx

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MINIS Commercial Applications to £12K
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London

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The Appointments Register

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CONSULTANT/TRAINER £12-15K Plus Car

Sphinx in its first year of operation has made a remarkable impact on the mini-computer industry as the UNIX* Systems expert. Such is the growth of Sphinx and the demand for its products and services that first rate job opportunities are presented and excellent prospects are offered.

This particular opportunity will allow the selected candidate to develop a job dependent on his/her own skills. The Information Services Group, one of three Sphinx divisions provides training and advice on current and new software products to existing and potential UNIX users. You could join this Group of specialists if you can augment their skills with your commercial consultancy and/or training experience.

Candidates aged 28-35 should have experience of developing and presenting training courses and/or of sales support in a software orientated environment. A degree or equivalent qualification is desirable. Experience of UNIX based systems and C programming language would be a distinct advantage but training will be provided to a candidate who can demonstrate the ability to quickly assimilate these technical elements.

Please provide a curriculum vitae or call me, Phillip Rich the Consultant advising Sphinx on this appointment.

* Unix is a trademark of Bell Laboratories.



Phillip Rich, Clark Rich Associates Limited,
31 Peasod Street, Windsor, Berkshire SL4 1EA.
Tel: Windsor (07535) 51212

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Tunbridge Wells

IBM/ICL to £14K
Commercial Applications London/Midlands

ICL 2900 COBOL to £11K
Dorset

Software Engineers

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Communications Glos/H. Counties/Midlands/Blackburn

REALTIME to £15K
Experience in embedded Micro-Processor Systems and M.O.S. Devices Berks

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Coral - Mascot Hants/Surrey/Essex/S. West

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FORTAN 77/ASSEMBLER to £16K
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Two of our clients, based in BIRMINGHAM and COVENTRY, are increasing their programming staff substantially, consequently at least ten people with varying experience are required by these two companies alone. If you are educated to degree level and have a minimum of two years' COBOL programming experience on mainframe equipment or if you have three years + of IBM COBOL, CICS and PL/1 pick up the phone on your desk NOW, you could be worth more than you think!

SYSTEMS PROGRAMMERS PROGRAMMERS & ANALYSTS to £17K

Several of the larger, well-established consultancies are undergoing large recruitment campaigns. Their standards are high, but so are the salaries - if you think you are worth more and have applications programming experience using IBM COBOL, CICS and PL/1 OR three years + of IBM Systems Programming experience, particularly with MVS/JES 2 knowledge OR experience of five years + as an Analyst then we want to hear from you TODAY. All reasonable expenses are met while working on assignments at client companies and additional training is a positive benefit.

PROGRAMMERS TO PROJECT LEADERS £7.5K to £14K + Car

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ALL LEVELS £s Attractive

To advertise all our clients' requirements would be impossible, we have many more positions available for experienced computer professionals who have worked on mini and mainframe equipment. If you are not included in the above sections do not despair. T.C.R. are always prepared to discuss career opportunities with Data Processing staff looking to enhance their careers and experience.

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This key management position will have full project responsibility for the system from initial involvement in equipment selection and systems architecture through to final implementation, with scope for continuing development.

Candidates

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As well as salary, company car and subsidised mortgage there is a highly attractive package embracing all the usual banking benefits.

For further discussion in complete confidence please telephone Tony Roberts on 0270 627206 daytime or 0270 624058 evenings and weekends, or write to him at the address across. Candidates' identity will not be made known to our client without prior approval.

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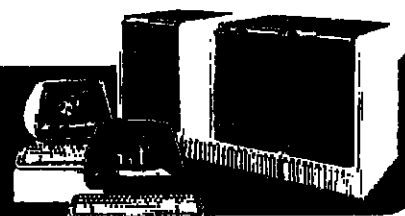
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HP 3000 Analyst/Programmers **£8k-£12½k**
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Banking **£12k to £18k package**
London and travel
Two years (minimum) to five years (better) as an analyst-programmer in big minicomputer environment is the experience our client seeks. Tandem + TAL/COBOL or IBM + RPG is ideal, but other Banking systems experience will also be considered for the more senior positions. Candidates must have project leading potential. Ref 0803/E



Isobel Bruce, David Fletcher or Gilbert van Someren 01-405 1006 or write quoting Ref. number, 16 Red Lion Square, London WC1R 4QS

Product Manager **£12k-£14k base**
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IBM Analyst/Programmer **£8k-£16k**
London
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OEM Accounts, P.C.s, LANs, W.P.s £18k+comms
Ref 0803/H

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Greater London
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London & Swindon
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Computer Professionals

Process Control **£9k-£16k**
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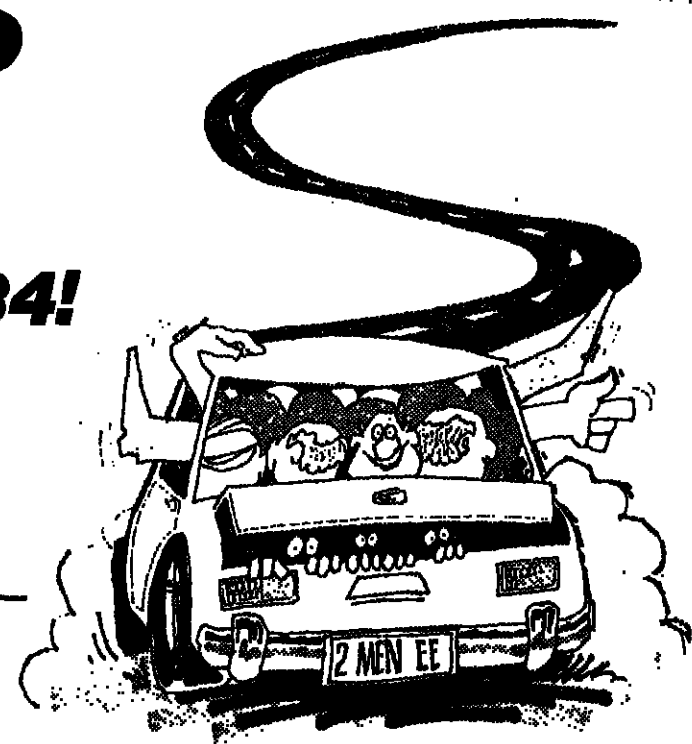
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C080

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London & W. Home Counties: Salaries to £13K

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A leading supplier of UNIX based MC 68000 systems and networks is seeking several Senior Sales Executives to be based in the East Midlands or The City. Successful candidates will, most likely, currently be selling UNIX 'total' systems to one or more of the following: Manufacturing, retailing, finance/banking or Research and Development laboratories. For certain positions familiarity with U.K. accounting practice or a DBMS (e.g. DBASE II or RAPPOR) will be of considerable advantage and will reflect in the salary offered. A willingness to travel within U.K. is essential. Occasional visits to U.S.A. may also be necessary. The Company offers a competitive salary and a comprehensive range of ancillary benefits including company car or generous allowance. Ref: L/10/D

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Greater London: Salaries to £12K

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IBM 4381

Database Administrator

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The newly expanded Computer Department has a vacancy for a Database Administrator. Applicants for this post must have a minimum of eight years' IBM experience of which at least three years must have been as a Database Designer or Database Administrator in an online, real-time IMS/CICS environment. Applicants must have been responsible for the design and implementation of at least one large and complex IMS/CICS database.

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Applications with detailed curriculum vitae attached and two recent passport size photographs should be forwarded, not later than March 15, 1984, to:

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Charles Spencer Chaplin 1889-1977

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Charles Spencer Chaplin was born in London, on April 16th 1889. His parents divorced when he was young; consequently, he and his brother spent their childhood and youth being cared for in a Lambeth children's home. Young Charles had stars in his eyes at a very early age – by the time he was 19, he was already a star performer with the famous Fred Karno's Comedians. The troupe's tour of America in 1913 was a raging success, not least for Charles who was contracted by a certain Mack Sennett to join the famous Keystone Studios. During that first year, Charles made no fewer than 35 one reel comedies.

However, the rot soon set in. Charles not only detested what he considered to be unnecessary violence and slapstick, he

wanted to develop his characterisation of the "little tramp" – the pathetic but lovable clown who sported the derby hat, exaggerated shoes, baggy trousers and tight jacket we have all come to recognise so well.

He achieved his dream – and by 1915 Charlie Chaplin's shuffling gait was famous throughout the world. With Essanay Studios and, latterly, The Mutual Company, Charlie Chaplin became a household word. First National Films gave him his first opportunity as a successful producer. Much later, with Mary Pickford, Douglas Fairbanks Senior and D.W. Griffiths, he established the United Artists Corporation.

America is still a land of opportunity and not least for Computer Professionals. British expertise has earned international respect and is highly sought after in the U.S.A. where computer technology is among the most sophisticated in the world.

This is one of the reasons why our client, one of America's most eminent and long-established software houses, wishes to appoint a number of experienced computer people to undertake problem-solving responsibilities throughout the country.

The company provides a wide-ranging analysis, design and programming service to blue chip clients in all strata of industry – financial, brokerage, utilities, manufacturing, distribution and services. It already employs over 500 technical staff and has an annual turnover of around \$32 million which continues to grow.

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BUSINESS ANALYST

London area Up to £15,000

User Driven Micro Solutions

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The Company has executed major changes in the last decade: doubling staff in response to increasing business and dramatically reshaping marketing strategy. In this atmosphere of progress, Management Information has become a crucial requirement.

Besides running HP and IBM mainframe systems to support day-to-day operations they also have a central MIS team which is increasingly commissioned by users from all disciplines and locations within the group to provide systems advice, problem solving and complete solutions.

As a result of the emphasis on distributed micro based systems a small team has been formed to provide micro-computing expertise – assessing hardware, packages and software tools to provide stand alone and mainframe linked, user-driven solutions. Throughout, the objective will be to educate and service users to a point where they can realistically define their needs and operate optimum solutions using MIS in an advisory and supporting role.

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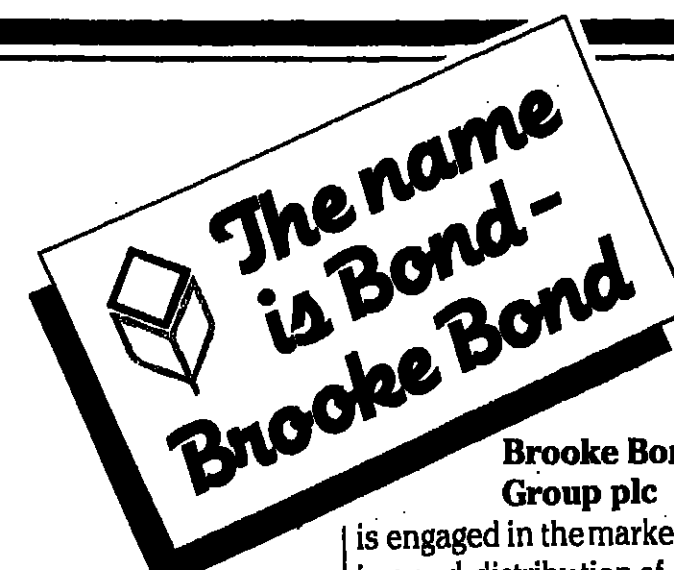
Group by liaising with application developers and tool users, together with routine testing. The work will also include supporting the administration functions of quality assurance by writing test specifications, test systems and reports.

In both cases applicants will be expected to have had two or more years experience working within an IBM environment particularly on applications running under MVS. They must also possess a sound knowledge of PL/I or IBM assembler whilst experience of ISPF, IBM utilities and VM would be a distinct advantage. A good educational background e.g. GCE science of 'A' levels is required. Equally essential qualities sought are diplomacy and good communication skills. Both posts report to Test and Quality group leader.

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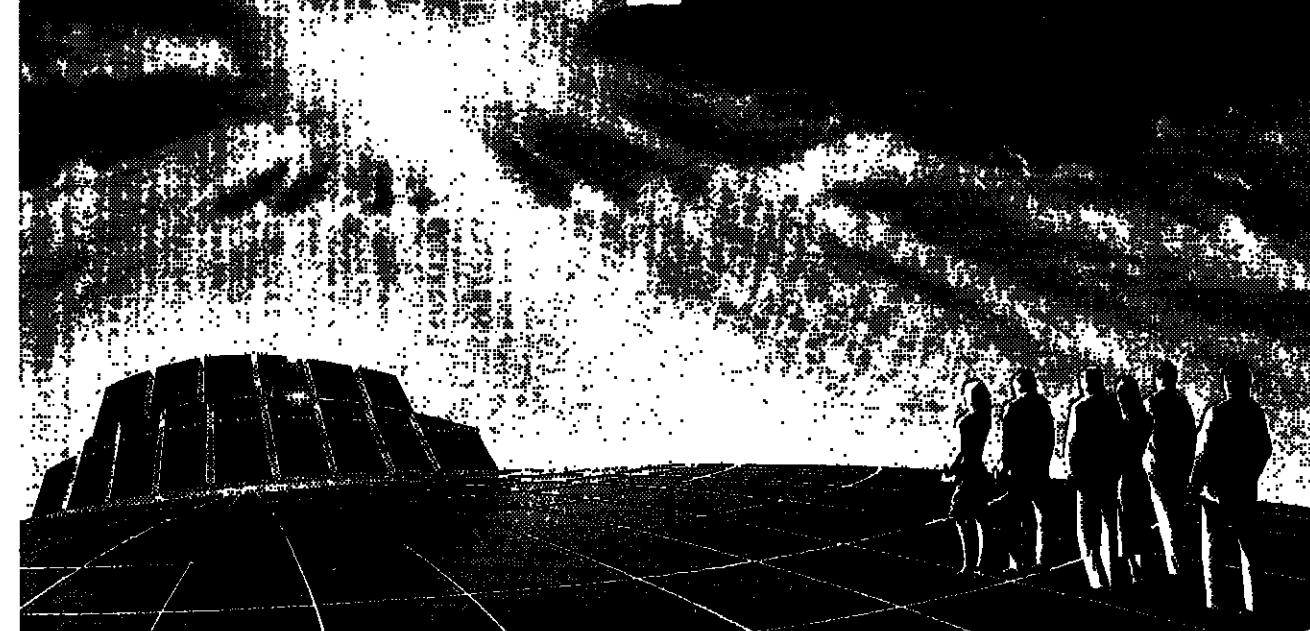
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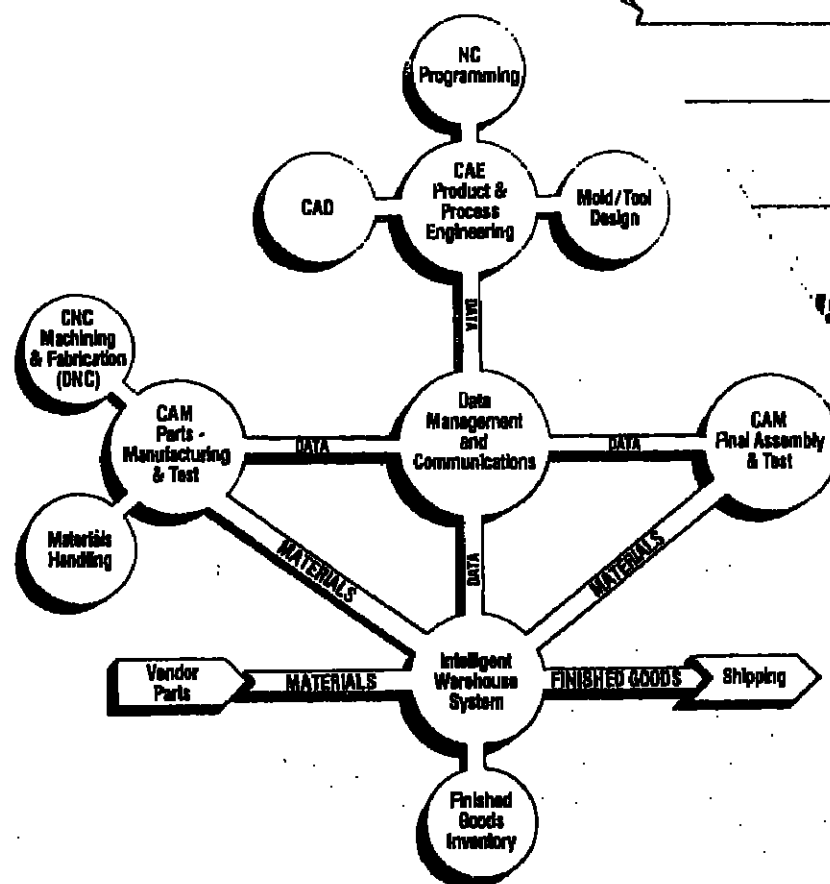
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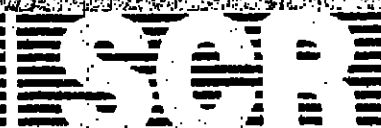
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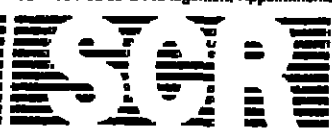
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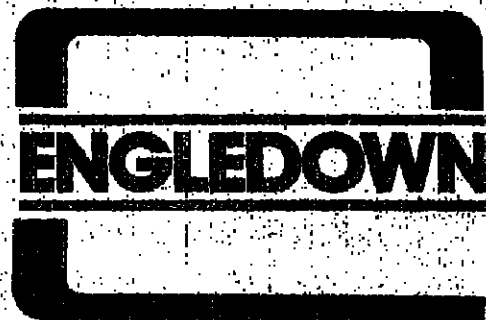
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SYSTEMS PROGRAMMERS

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JSP	Programmer/Analyst	London
ICL 2900, VMEs	Programmers	London
DATA GENERAL,	Consultant	Essex, Middx.
OS/VS	Programmer/Analyst	South
PL/1	Systems Programmer	Surrey
IBM 3/38	Analyst	Hants
TEXAS INSTRUMENTS	Analyst/Programmer	South
STRUCTURED ANALYSIS	Software Engineers	All areas
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★ Excellent contract rates/salaries ★ Full range of benefits
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Please contact:
Tangent Computer Services Ltd.
Fairfield House, Fairfield Road,
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Systems Analyst

Bucks

Financial services organisation seeks analyst to design and develop new on-line database systems. Minimum 3 years analysis experience is required; knowledge of ICL mainframes an advantage. Degree qualifications preferred but not essential. Excellent benefits package plus full re-location assistance. Ref. 301

Analyst/Programmer

S Wales

Manufacturing and distribution company requires analyst/programmer with 4-5 years experience including development of mini computer based interactive systems. HP3000 experience is preferred; good Cobol knowledge is essential. Good company benefits plus re-location assistance. Ref. 302

Analyst/Programmers

Glos, Midlands

Manufacturing subsidiaries of major groups require analyst/programmers with a minimum 2 years experience to develop systems in Cobol to run on IBM 4341 machines. Knowledge of CICS and/or DL1 is desirable. Attractive locations. Re-location assistance. Ref. 303

Analysts

S Wales

Major financial institutions require an experienced analyst for work on mainframe projects and a junior analyst to assist with enhancement of mini computer and communications systems. Good degrees are essential plus a minimum of 12 months experience. Excellent benefits package and full relocation. Ref. 304

Write or telephone:

London West Computer Recruitment
Evergreen, Dauntsey, Chippenham,
Wiltshire SN15 4JA
Telephone: (0249) 891114

LWCR

London West Computer Recruitment

CONTRACTS £ neg per week

Real Time Programmers

West

Immediate start contracts available for Real Time programmers with Intel, Z80 or similar micro assembler skills plus C or Pascal. Knowledge of micro-based business applications and/or communications systems is desirable. Ref. 305

Real Time Designers, Programmers

West

Several contracts with early start dates available for systems designers and programmers with good technical Real Time mini and micro computer systems experience. Knowledge of Coral and Assembler is essential. Ref. 306

Hewlett-Packard Programmers

Central London, West

Experienced programmers with HP3000 Cobol and Image required immediately in several locations. Ref. 307

IBM FOCUS

Central London

IBM analysts and programmers with significant FOCUS experience required for long-term assignments at top rates with major corporation. Ref. 308

Process Control

Wilt

Successful company developing process control applications for public and private sector organisations world-wide are seeking additional staff at all levels. Of particular interest is real time experience on DEC VAX or alternatively PDP 11 running under RSX 11M. Degree/HND/HNC essential. Re-location assistance. Ref. 309

Micro Systems Software

Wilt, Berks

Leading companies developing advanced software and micro-based hardware products seek computer science graduates interested in a career in systems software development. Internal knowledge of operating systems, language compilers and systems utilities plus assembler, C or Pascal is required. Excellent conditions. Re-location assistance. Ref. 310

Real Time Control Systems

Wilt

Market leading company developing advanced control systems require staff at all levels to work on new projects. Senior project leaders must have Coral and Real Time Assembler experience on minis (HPI000 preferred) and micros. Attractive location and good re-location package. Ref. 311

Senior Electronics Engineers

West Wales

Subsidiary of major group requires engineers at management and designer levels with experience of ATE, quality control and analogue and digital design. Some software experience is desirable. Degree/HND qualifications essential. Attractive location. Competitive salaries. Full relocation. Ref. 312

PUBLIC SECTOR APPOINTMENTS

The Council is currently introducing a Wang Information Processing System which is being used extensively for word processing with some data processing applications and now needs to be progressively developed to allow for its full potential to benefit the Authority.

To undertake this work we need two highly motivated staff with a professional background in microcomputers and word processing to assume overall responsibility for consolidating the work already done and for the future development of the Wang system. These staff would form part of the Central Computer Development Group which will ultimately report direct to the Chief Executive.

Office Systems Manager

(Word Processing)

Grade PO1A Salary £9545 to £11,052 p.a. plus £77 London Weighting

To manage and co-ordinate the Wang Network in relation to word processing, providing advice to Council departments on the use and development of the system. There is also a major priority to identify training needs and implement training programmes for operators and line managers. Ref: C/506

Office Systems Manager

(Technical)

Grade PO1B Salary £10539 to £11,703 p.a. plus £77 London Weighting

To manage and co-ordinate the Wang Network in relation to its Data Processing capability, including the evaluation of all new applications. To be the centre of competence on all data processing and communications aspects of the system. Undertake as a major priority all staff training associated with data processing and communications matters. Ref: C/507

BRENT IS AN EQUAL OPPORTUNITY EMPLOYER. JOB SHARERS WELCOME

APPLICATION FORMS UNLESS OTHERWISE STATED FROM THE PERSONNEL DIVISION, ROOM 1, BRENT TOWN HALL, ANNEKE, KINGS DRIVE, WEMBLEY, MIDDLESEX. RETURNABLE BY 28th March. TEL. 01-903 0371 (24-HOUR ANSWER SERVICE).

REFERENCE NUMBERS MUST BE QUOTED.

London Borough of

BRENT

(8240)

BUCKINGHAMSHIRE AYLESBURY COLLEGE

AYLESBURY HP21 8PD
Applications are invited from men and women for the following post in the Department of Science in Technology.

LECTURER IN COMPUTER STUDIES/ MATHEMATICS

Applicants should have graduate or professional qualifications, preferably in Computer Science. The courses currently taught include B/TEC Diplomas in Computer Studies, GCE 'O' and 'A' level, TSC, SEC, as well as a variety of short courses. A knowledge of modern microprocessor theory and electronics would be an advantage.

Duties to commence September 1, 1984.
Salary: Lecturer £8,640-£9,735.

Assistance with removals and other expenses will be provided in approved cases.
Application forms and further particulars for the above post may be obtained from the Principal upon receipt of a stamped, addressed (foolscap envelope) to whom completed forms should be returned within 14 days of the appearance of this advertisement.

(8291)

UNIVERSITY OF GLASGOW Computing Service APPLICATIONS PROGRAMMER AND ADVISER

Interested in applications programming, and in helping others with their programming problems? Further particulars of a vacancy, for which the salary is currently in the range from £7,190-£11,615 per annum (but due for revision w.e.f. 1st April), may be obtained from: The Academic Personnel Office, University of Glasgow, Glasgow, G2 8QQ. Closing date for applications: 30th March, 1984.

In reply please quote Ref. No. 6100/2P

(8297)

LUTON COLLEGE OF HIGHER EDUCATION Park Square, Luton, Beds Dept. Maths & Computing SENIOR LECTURER IN COMPUTING

A Senior Lecturer is required as soon as possible to play a leading role in the development of B/TEC Higher National Courses in Computer Studies. Ability to teach Systems Analysis/Data Processing and Systems Maintenance in B/TEC courses would be an advantage.

Salary: SL Scale £10,830-12,443.
Details and application forms from Assistant Director, L255, Park Square, Luton LU2 3LE. Tel. (0525) 34111 ext. 740. To be returned by March 23rd 1984.

Grade C.C. is an equal opportunity employer

(8195)

POLYTECHNIC OF THE SOUTH BANK

Manor House, Clapham Common, SW4

OFFICE TECHNOLOGY UNIT

The Office Technology Unit which exists to provide Open Tech courses in Office Automation requires the following personnel:

SENIOR LECTURERS/LECTURERS

Grade II (Full or part-time) Office environment/Office automation. Ref: OT.13

These courses are for office workers who want to know more about new technology and its effect on their working lives. The course is based on a piece of that technology - the BBC micro. This will serve to give students familiarity with the microcomputer and its applications, as well as being a vehicle for computer aided learning. This work cuts across traditional disciplines and Lecturers are required with backgrounds in information systems, information technology and environmental engineering, with interests in the office, office practice, and new technology. They will be working on the production of distance learning materials using a variety of media particularly text, audio-tape and computer aided learning.

Two full time posts are available as well as part-time contracts for lecturers to work on specific topics.
Salary will be in the range:
Senior Lecturer: £11,870 (x8) - £14,430 p.a. inclusive of Lecturer, Grade II: £8,202 (x10) - £12,555 p.a. London allowance

Starting salary will be dependent upon qualifications and experience.

PROGRAMMERS

Salary up to c.£8,000 p.a. inclusive of London allowance. Ref: OT.12.
Students will work on their own BBC micros using commercial software and specially produced educational programs.

Two programmers are required to produce computer aided learning packages working in conjunction with teaching staff. Graphics experience and BBC basic essential.

MICROCOMPUTER TECHNICIANS

Salary up to £8,000 p.a. inclusive of London allowance. Ref: OT.11.
Students will be working on BBC microcomputers and much of the program development will be done within the unit. This will include a lot of graphics work.

Two technicians are required to look after the stock of micros and software, to interface machines and peripherals and help in system testing. HND/BSc in electronics or computing preferred although a trainee with micro experience might be considered.

Further details and application form for any of these posts may be obtained by writing to the Staffing Office, enclosing a self-addressed envelope not smaller than 10" x 7" at:

Polytechnic of the South Bank
Borough Road, London SE1 0AA
Closing date for receipt of completed applications will be 30th March, 1984.

(8277)

UNIVERSITY OF LIVERPOOL Department of Computer Science LECTURER

Applications are invited for a post of Lecturer in the Department of Computer Science. Candidates should have research experience in any non-numerical area of Computer Science but applicants with research interests in expert systems, databases or artificial intelligence will be particularly welcome.

Candidates should normally possess a higher degree in Computer Science, or have equivalent industrial or academic experience. The appointment will commence on 1st May 1984 or a date to be arranged and will be on the scale £7,180-£14,125 p.a.

Applications, together with the names of three referees should be received not later than 28 March, 1984 by The Registrar, The University, P.O. Box 147, Liverpool, L69 3BX, from whom further particulars may be obtained.
Quote Ref: RV238/CW

(8213)

UNIVERSITY OF READING COMPUTER CENTRE SYSTEMS PROGRAMMER

A Systems Programmer is required to join the group developing and maintaining systems software within the Computing Service. The Centre operates an Amdahl V/7A, running VM/CMS and UTS and a series of IBM 3081 and 3082 mainframes, plus an extensive 3226 campus wide network. The Programmer's main duties will be in the VM/CMS group, and familiarity with this or another IBM system would be an advantage. Applicants should possess a degree and relevant postgraduate experience. The post is a permanent one on either Grade LA (£11,860-£14,125 p.a.) or Grade LB (£7,180-£11,615 p.a.) according to experience. The post carries USS supervision. Apply quoting Ref. 8/14, for application form and further details to Personnel Office, University of Reading, Whiteknights, Reading RG6 2AH. Closing date 30.3.84.

(8229)

YORKSHIRE REGIONAL HEALTH AUTHORITY REGIONAL COMPUTER CENTRE - HARROGATE

The Regional Computer Centre provides a comprehensive service to users in 17 Health Authorities and has a number of vacancies for qualified and experienced staff. A new computer centre is in operation working on an ICL 2986 with extensive communications capabilities together with various makes of micro/minis.

The computer applications cover a wide range of activities including medical, hospital administration and financial control, all of which may be provided on the above hardware.

Systems Designer/ Programmer (Scale 4)

A number of posts are required to be filled at the above level by applicants with a sound educational background together with two or more years' practical design experience, excluding training.

Formal training in Systems Design and/or Programming is required and applicants must have proven capabilities to design and/or program major programs or sections of systems. A good knowledge of large mainframes, mini or micro computers will also be necessary together with experience of structure design methods which are used in all areas of work.

Salary Scale £7,404-£10,025 p.a.

Application forms and Job Descriptions are available from the Assistant Director, Yorkshire Regional Health Authority, Park Parade, Harrogate HG1 5AH.

Please quote Reference Number AC 96
Closing date: March 23, 1984

(8240)

GLC

Working for London

Systems development for a vital emergency service

Team Leader

London Fire Brigade

As a department of the GLC, the London Fire Brigade is a major user of the Council's massive IBM mainframe facility. It is also rapidly developing highly sophisticated local systems, utilising personal computers and advanced software, for its 11 Divisional Offices controlling 114 fire stations.

This challenging new post has been created in direct response to this dynamic increase in computerisation and will involve an exceptionally stimulating opportunity for a talented analyst/programmer with at least 2 years' professional experience in local government or other relevant computing environment and a working knowledge of IBM OS and ADABAS NATURAL.

Responsibilities will entail heading a small team in the development, co-ordination and progress of new systems and the maintenance and enhancement of existing facilities, providing interface and technical support to users within the Fire Brigade. There will be scope for involvement at all stages, from problem assessment to implementation. Contributing to the evaluation of hardware and software will be an essential part of the work.

A high degree of initiative is called for, together with good communication skills and a sound knowledge of personal computing techniques. This post is suitable for job sharing.

Salary: £8,685-£13,935 inclusive.
For an application form, to be returned by 23rd March 1984, write to: Personnel 2 Section, London Fire Brigade Headquarters, Albert Embankment, SE1 7SD or telephone 01-735 4854.

The GLC welcomes applicants from all sections of the community, irrespective of their sex, ethnic origin, colour, sexual orientation or disability, if they have the necessary attributes to do the job.

The GLC is an equal opportunities employer

UNIVERSITY OF LIVERPOOL Computer Laboratory SENIOR PROGRAMMER/ANALYST

Applications are sought for a post in the Administrative Computing Section with special responsibility for the specification, development and implementation of computer systems for the Building Services Department. This department has responsibility for the management of the University estate, maintenance of buildings, mechanical and electrical plant, and energy control associated with a large institution. Initial developments will utilise codeasy database techniques on modern transaction processing system (Honeywell DPS7), but future developments will incorporate distributed systems, including microcomputers. Successful candidates will become part of a large team of programmer/analysts which support both administrative and academic computing services on a wide range of machines, including IBM, ICL, DEC and Honeywell.

Candidates should be graduates, and experienced in the use of codeasy databases, Cobol, knowledge of Fortran an advantage. Salary in range £9,875-£11,615 p.a.

Application forms may be obtained from The Registrar, The University, P.O. Box 147, Liverpool L69 3BX. Quote Ref: RV238/CW.

(8220)

SOCIAL & COMMUNITY PLANNING RESEARCH PROGRAMMER

SCPR, an independent social research institute requires a programmer to join a small team concerned with the processing and analysis of data from a series of individual research studies, and with the development of a variety of related and general applications.

The Institute has links to an advanced VAX computer running UNIX, but an increasing number of applications are being developed to run on in-house microcomputers.

A sound computer background, adaptability and the ability to communicate with non-computer staff are essential for the job. Experience in handling survey data would be a distinct advantage.

Salary in the range £7-10,000 according to experience and qualifications. Please write or telephone to obtain further details and an application form to the Data Processing Director.

35 Northampton Square, London EC1V 0AX. 01-250 1868

(8270)

NORTHERN IRELAND HOUSING EXECUTIVE

Housing Executive

COMPUTER SERVICES CO-ORDINATOR

Ref. No. 38/2761

SALARY SCALE £18,899/£18,534 per annum

LOCATION: Based in Belfast

The Northern Ireland Housing Executive is the largest Housing Authority in the UK, and provides a comprehensive service to tenants through a central and regional structure to both Public and Private Sector. In its attempt to improve housing and social conditions within the Province.

As part of its policy to improve services at all levels, the Housing Executive has developed a computer strategy which will involve the extension of computer facilities into many of its operations.

We are therefore seeking to recruit a suitably qualified professional to co-ordinate the duties:

The Computer Services Co-ordinator will be responsible to the Director of Personnel and Management Services for the provision of a comprehensive computer service including communications, microcomputer applications, both hardware and software, throughout the Executive.

Applicants must hold a relevant degree or an equivalent technical qualification and be able to demonstrate extensive experience of major computer systems, ideally gained as a Computer Systems Manager, and a knowledge of microcomputer hardware and software would also be desirable.

Application forms and further details may be obtained from The Housing Executive, 2nd Floor, 100 Victoria Street, Belfast BT2 8PS.

Telephone: Belfast 240886, Ext. 2308 or 2182

Completed application forms should reach the above address not later than Friday, March 23rd, 1984.

Please quote reference number:

The Checkout Company offers its customers a complete service in providing hardware, software and maintenance on all the products it supplies.

The products and services developed by Checkout cover a wide range of computer related projects in commercial, industrial and service related fields.

We are a young company and as a result of being awarded a large contract we are recruiting the following personnel:

ELECTRONIC SYSTEM DESIGNERS

With microprocessor and system design experience to spearhead exciting new developments undertaken by Checkout in the computer systems field.

SYSTEM TROUBLESHOOTERS

To lead an expanding team of field support personnel. Field service managerial experience is essential, along with a good hardware and software knowledge in the mini and micro fields.

FIELD SERVICE ENGINEERS

Experience in sophisticated integrated point of sale network environments would be an advantage.

If you are interested and are looking for a rewarding and challenging career with all the benefits a rapidly expanding company has to offer please write with full C.V. to:

Mr H. Chelache
Checkout Computer Systems Limited
Trimoco House
2 Victoria Street
LUTON
Beds

(CHECKOUT)

(8228)

Marconi Space and Defence Systems is a leading company in the design, development and manufacture of a wide range of high technology systems and equipment for civil defence and aerospace markets. We have the following vacancies in the Business Systems Department at the Broad Oak Works

SYSTEMS & PROGRAMMING MANAGER

Responsible to the Business Systems Manager for a D/P staff of eight who are currently engaged in the early stages of implementing a major on-line integrated manufacturing/costing system. The Systems & Programming Manager will be educated to degree standard and will have at least 3 years' managerial experience in a manufacturing environment.

The successful candidate will be able to demonstrate systems and data base design and implementation success, preferably on IBM Mainframes using DLI/IMS, and will be responsible for the development and support of existing and future bespoke applications to enhance and complement the system.

PROGRAMMER 1

A minimum of 1 year's Cobol experience on IBM Mainframe running under OS and IMS/DC or CICS

is necessary for this position. Reporting to the Senior Programmer, duties will include Programme coding, testing and documentation to standards defined by the company. A knowledge of CMS, TSO, PAMIS, FILETAB or DLI would be an advantage.

ANALYST PROGRAMMER

Reporting to the Senior Systems Analyst, duties involve all aspects of programming on both existing and new systems; analysis, design, specification and implementation of systems necessary for the enhancement of a major on-line integrated manufacturing and costing package.

A minimum of 3 years' solid Programming/Systems experience (in a manufacturing environment) on IBM Mainframe using IMS/DC, DLI/1 is required with education to at least 'A' level.

Attractive salaries and benefits packages commensurate with the levels of position are offered, together with relocation assistance where appropriate.

Please apply in writing with full c.v. including current salary, to Averil Jakeman, Marconi Space and Defence Systems Limited, Broad Oak Works, The Airport, Portsmouth, Hants PO3 5PQ or telephone 0705 664966 ext. 4217 for an application form.

Marconi
Space & Defence Systems



(8280)

مركزنا من اجل

COMPUVAC

COBOL PROGRAMMERS

TO £12,000

We currently have a large number of openings for COBOL Programmers. Ideally you will have worked on IBM mainframes for at least one year and have some knowledge of software, especially CICS and DLI or IMS. Vacancies exist in and around London.

REF: LD/CW

PL1 PROGRAMMERS

TO £11,500

A number of clients based in London and the Home Counties are looking for PL1 Programmers at all levels. Any experience of CICS or IMS would be advantageous but not mandatory and most opportunities offer a good career path into Senior Programmer and Analysis positions.

REF: LD/CW

ANALYST PROGRAMMERS

TO £14,000

Our client based to the South West of London is urgently seeking Analyst Programmers with a good knowledge of COBOL or PL1 on MVS or DOS systems. You should also have experience of on-line systems working from feasibility through to implementation.

REF: LD/CW

SYSTEMS PROGRAMMERS

TO £19,000

Based in the London area, our clients are looking for experienced people with a sound knowledge of DOS, VM or MVS systems. Applicants must have experience of the following: CICS, ACF, VTAM, DLI, IMS, TSO, SNA. A number of the positions include generous benefits packages.

REF: RC/CW

SYSTEMS ANALYSTS

TO £15,000

Candidates should have up to five years' experience in Analysis and would have seen a major project from feasibility through to implementation. You should possess good communications and supervisory skills and preferably have worked on the database side. Positions are based in Home Counties and London.

REF: RC/CW

IBM CONSULTANCIES

TO £20,000

A large software house based in Central London are looking to recruit senior data processing personnel in a number of areas with sound IBM mainframe experience on OS or DOS/VS systems. A previous programming background in ASSEMBLER would be desirable as is proven supervisory or management experience.

REF: RC/CW



TELEPHONE

253 5042

(10 LINES (24 HOURS))

OR 250 0456

COMPUVAC HOUSE

121-125 City Road, London, E.C.1
(NEXT TO OLD STREET TUBE EXIT 1) OR SEND C.V. TO

COMPUVAC-FREEPOST EC1B 1EN

(8275)

NATIONAL ASSOCIATION OF CITIZENS ADVICE BUREAUX

The Association currently has the following vacancy:

MICROCOMPUTER PROJECT MANAGER

(Three Years)

This Association is currently implementing a Research and Development Project to introduce and evaluate the use of microcomputers in a sample of CABs over a three-year period. The aim of the project is to determine whether microcomputers would improve the service offered by the Bureau to the public, and to identify and develop relevant software together with NACAB support staff and Bureaux.

The Project Manager will be responsible for the operation and management of the Project, including the management of 11 staff, co-ordination with central and local Government, fund raising from a variety of sources including sales of systems, liaison with the computer field, and in particular liaison within the CAB service.

Applicants must have management and computing skills, together with a sound knowledge of education and research work. The successful candidate will be based in Central London, but will be required to travel throughout the U.K. A car owner/driver is essential. The post will be offered on a three-year contract. Salary will be commensurate with experience. Generous leave and contributory pension scheme.

For job description and application form please WRITE on a postcard to: Head of Personnel, NACAB, 110 Drury Lane, London WC2B 8DW.

CLOSING DATE: 23rd March 1984

All applicants considered on basis of suitability for post regardless of sex, race, marital status or disability.



(8272)

JOBS IN THE MIDLANDS

Industrial heart is beating faster

Big firms in the Midlands are stepping up recruitment, says Nigel Whitnall

FOR those thinking about a job in the Midlands, now is the time to try. The big firms are beginning to brush off the dust of the recession and are gradually stepping up recruitment, but they still prefer home-and-bred Midlandsers.

Some companies are looking only for staff with at least 18 months' experience, others only for trainees, but generally the Midlands computer scene is starting to buzz again.

Midlands industry is dominated by manufacturing. British Leyland, including the DP offshoot Isotel (formerly IIL Systems), and Buss Charrington are major computer staff recruiters, although the largest computer staff is at Kalamazoo, which employs some 400 people.

"Over the last nine months,

firms have taken on people they really needed two years ago," says Lorraine Taylor, of consultancy Knight Programming Support.

"Before that, many companies had self-imposed bans on recruitment. Salaries were held down because there was a mountain of experienced staff and not enough jobs to go round.

"Now there are a lot more vacancies for them, Midlands companies have a good selection."

On the programming side, salaries are on the low side (see Table 1). Minimum experience required is usually 18 months', and IBM experience in particular.

More specifically, experience on the IBM 34 up to the 38, and with RPG 2 and 3, is advantageous.

At ICL installations, VME ex-

perience is usually required. The other prominent hardware used in the Midlands is Univac - combined with "good Cobol experience". On other hardware, firms are fairly eclectic in their tastes.

The last nine months have seen more staff flow in and out of the Midlands. "People have actually been coming from London to us," says Taylor, "although they often have to take a £1,000-£2,000 drop in salary."

"One woman who was working for a software company in London dropped from £10,250 to £8,750 when she moved to the Midlands," she adds.

Midlanders are now happy to move away to areas such as the Home Counties, Shropshire and Worcestershire, where generally the property is better and wages higher.

For graduates aiming to enter programming, the outlook is not bright. Most agencies will not take on graduates, and only the large firms such as Isotel and Lucas have a steady intake. Most graduates go to London for their first job.

Midlands salaries for operators are generally good as can be seen in Table 2 as much as £2,000 higher than comparative salaries in Manchester or Stoke. A lot of operators move into the Midlands, and an average requirement would be for 18 months' IBM experience.

ICL firms will recruit only

operators who have already worked on ICL equipment. "ICL firms have made a lot of redundancies recently. There are a lot of ICL people on the market at the moment," comments Manners-Fenton.

Government-connected bodies seem to have come out of the recession better than their commercial counterparts. The City of Birmingham Computer Centre, for

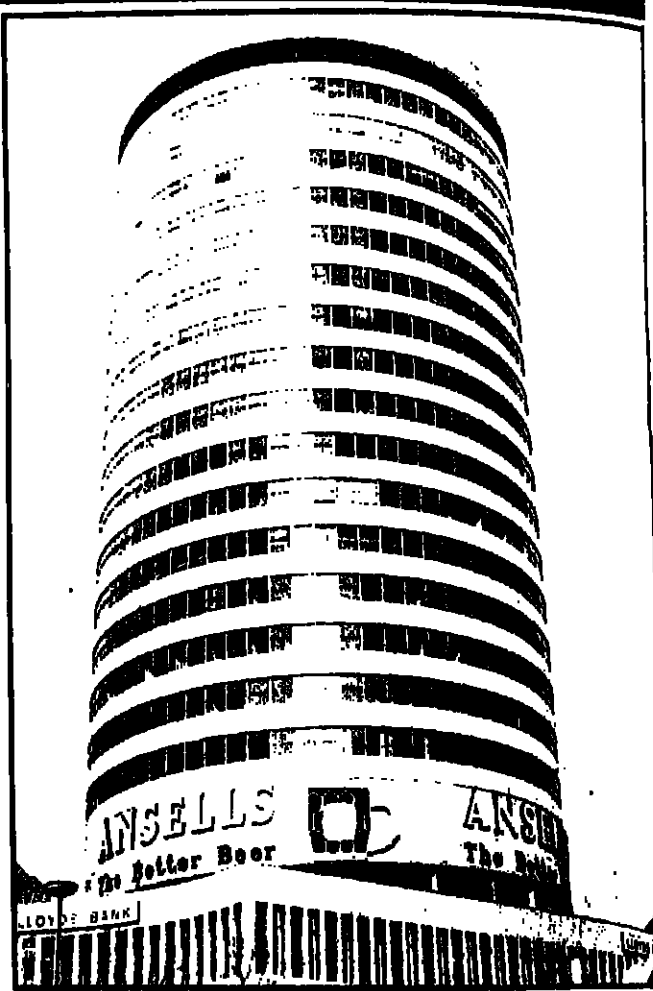
Midlands salaries for operators are generally good - as much as £2,000 higher than comparative salaries in Manchester or Stoke

example, run by the Metropolitan District Council, is showing healthy expansion.

"Requirements have been growing in Birmingham," says a spokesman. "We haven't really been affected by the recession. We were expanding all through last year, mainly on the development side."

The Centre recruits between six and 12 experienced trainees a year. Minimum experience required is usually about three years' on the type of job being applied for.

"Over the last two years we've



The Birmingham Rotunda - heart of Britain's second city.

tended to recruit more Tops people than graduates," says the spokesman, who envisages a "steady increase" in jobs available.

Midlands Electricity, thanks to a union agreement, has had a firm policy of "trainees only" for the last eight years. And the majority of trainees are local graduates. Experienced staff applying from outside automatically placed on the minimum salary for the grade.

A spokesman claims that the company has not been affected by the recession, rather it has "helped to reduce turnover on the systems

side". The company is currently recruiting about four people a year.

On the commercial side, Buss Computer Services' recruitment is "fairly static", according to personnel manager Brian Phillips. The company generally prefer graduate trainees to people with experience.

Phillips is strictly selective about his recruitment at all levels. "About 20% of people who send in curriculum vitae get interviews," he says. "Of those, we take one every 10."

Automotive Products

An independent group of companies, primarily engaged in the manufacture and distribution of motor vehicle components, (e.g. Borg and Beck Clutch, Lockheed Brake Systems etc). Automotive Products is a world wide organisation with a strong UK base, largely centred in the Midlands. The Automotive division, Banbury is the hub of the company's replacement parts operation and is one of the largest specialist vehicle component sites in Europe.

The town of Banbury is rapidly expanding into a thriving commercial centre but still retains much of its old market town atmosphere. Situated on the edge of the Cotswolds, Banbury and the surrounding villages provide a pleasant environment in which to live. A number of opportunities now exist in our Computer/Systems Departments.

The installation comprises a twin IBM 4341 configuration with 8 MB of storage each, 16 x 3370 disks, 4 x 3420 tapes and a network of approximately 200 terminals located in Banbury and around the country. Production systems are based on COBOL and MSA application packages, running under CICS/PL/I and DOS/VSE. Development and personal computing facilities are provided by VM/CMS.

We have vacancies for:

SYSTEMS PROGRAMMERS

DOS: with 3 or more years experience in maintaining DOS system with knowledge of POWER, CICS, PL/I and VSAM.

VM: with 3 or more years experience in maintaining VM system. A knowledge of APL would be advantageous.

Communications - with 3 or more years experience of maintaining a SNA communications network using VTAM and NCP.

DATA BASE ANALYSIS

With programming experience in CICS and DL/1 to maintain CICS tables and DL/1 control blocks.

APPLICATIONS PROGRAMMER/ANALYSTS

Programmer/Analysts - between 2 and 4 years commercial systems experience using COBOL with CICS or DL/1 - Major projects include new developments in order control, distribution and financial systems.

SENIOR PROGRAMMER - 4 years experience with CICS or DL/1 to be responsible also for the direction of junior and trainee staff. In addition to the sort of terms and conditions expected of a large, progressive company, Automotive Products offers salaries which are negotiable according to job status and experience and, where appropriate, will assist with relocation expenses.

For further information, and/or application form, please contact David Barrie, Computer Services Manager, or Colin Rodda, Personnel Controller at Automotive Products plc, Automotive Division, P.O. Box 14, Southam Road, Banbury, OX15 7QX. Telephone Banbury (0295) 4421.



Batchelors is investing heavily in new, integrated systems which are forming an increasingly important part of the Company's operations. We are introducing on-line systems across three sites, through a network of IBM 4300s operating under DOS/VSE. We now have a vacancy at our Head Office in Sheffield.

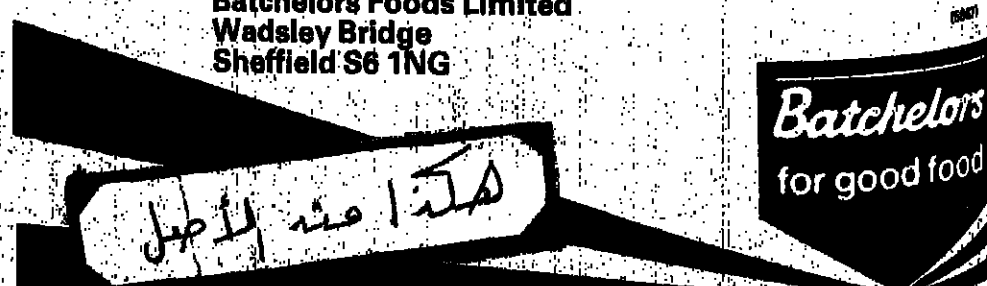
DESIGNER PROGRAMMER

This is an excellent opportunity for an experienced designer/programmer with a sound knowledge of CICS/PL/I and COBOL to develop skills within our busy development team. You will assist in the specification and design of systems/databases, fulfilling an essential role between the business and technical functions in the Business Systems Department.

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The successful candidate will be aged a minimum 28 and have been in a Project Leadership/Project Management role for a minimum two years to date. Past experience at some point of at least two years' COBOL programming is mandatory, with preference for having worked on a major manufacturer's machine. The ability to present using a terminal and a series of menu driven screens as part of a daily presentation technique is essential, as is a high level of communication ability. We equally need candidates who are capable of rapidly assimilating a prospective client's individual requirements and identifying any deviations from the established packages, recording and estimating content accordingly.

Equally, it is important to have the personality trait and character to work for long periods without close management supervision and the flexibility of mind to address the many variations of customer prospects, attempting to use the basic modules of the packages, enhancing individual features as their companies or services deem it necessary. As part of the task, we envisage you cataloguing, defining and recommending appropriate enhancements advantages as business aids for the prospective client of the package products themselves on a marketing advisory basis.

Equally, you should have the skills and abilities to specify the necessary development changes, the application system development area under the control of alternative managers and directors. Candidates should be able to report primarily to a marketing directorate and play a major part in supporting a dynamic sales effort throughout the company. Ability to project at a high professional level, constantly and sometimes repetitively, is very important.

Equally, the role will involve training users in the use of the said packages in-house at our Science Park Data Centre and occasionally away at client premises. A driving licence is essential and past experience in a marketing support activity, or perhaps even commercial lecturing/academic environment may well be advantageous.

This represents a new and challenging role within a rapidly expanding organisation set on the outskirts of the University campus. We have already successfully gained a significant number of clients throughout the UK in many diverse UK industries. It offers excellent career prospects for the right quality of individual. Apply Initially John Wood - Telephone No. 021-359 0854.

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For initial discussions contact Geoff Caine.

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ICL ME29/2904

We urgently require an experienced, accomplished Systems Programmer able to support complex package system and client custom built system development requirements. Experience of JCL for TME would be advantageous, as would any plan experience. Occasional visits to client sites throughout the UK will be involved. We offer good working conditions in a lively modern environment within a new developing unit of the Aston Science Park, Central Birmingham.

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Please write enclosing details to: John Wood or Bob Tait

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MAR 13th
4 till 9pm**

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We are seeking three accomplished salespeople; one with significant experience of selling DEC-based commercial and industrial Turnkey Systems up to a value of say £200k, and two with a good track-record of selling Computer Terminals. In the former case, a pre-sales support analyst would also be considered. In the latter case, some exposure to DEC equipment will be advantageous, but not imperative, whereas a proven ability to communicate at a senior level is essential in both instances.

An attractive compensation package is negotiable, including a company car and a variety of fringe benefits with on target earnings of £22,000.

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(8073)

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SALES BIT Quality of Management - 86

How to identify the losers in your team

If a note of cynicism creeps in this week, it is because most of the column is written from a number of personal experiences over the year that have affected my absolute belief in my species. The subject is losers - those people who are always able to snatch defeat from the jaws of victory; those who inevitably fall you, the sales team and themselves for reasons that are often socially and ethically unacceptable.

They can come in a variety of forms from the basically inept, through layabouts, free-loaders, cheats, liars, rogues, to outright criminals. But these labels are invariably applied after the event with the help of hindsight.

What's more, those are regretfully a replacement of earlier labels that could initially have described the person concerned with an array of superlatives from "obvious potential in need of a second chance", through "only needs the right product/company", "some problems, but I can sort them out", to "high flyer/super hero in need of a change".

As a "rule of thumb", the experienced recruitment consultant is just as likely to get it wrong as the

delivery and the like. He is never a failure to himself; it is merely that sales are giving him a bad time.

Unconvincing Expenses: Basically, dishonest losers always make expense claims that do not fall into the common pattern of the rest of the salesforce. Their cars always use more petrol than those of their colleagues, they always get involved in more of those expenses for which one does not normally get a receipt, they lost receipts, they have lots of receipts from the same garage in the same (and often familiar) writing.

Bad communicators: Good communications is bad news for people with something to hide. Losers usually produce sketchy and inconsistent call reports, if they produce them at all.

Excuses, Excuses: Losers usually have a vivid imagination; they need it to prolong survival. They are never lost for elaborate excuses whatever the situation.

Dust Raisers: Life is always hectic, rushing around "seeing people" (usually straight from home or on the way home), making lots of phone calls, writing lots of letters, lots of "working

A growing business like the computer industry gives a lot of scope for "guarantee hoppers" and other types of losers. Sales managers must constantly be on the look-out for such people

manager for whom he is working. The reason is simple: there are no infallible techniques for identifying and qualifying basic human characteristics, like industry, integrity and commonsense. Consequently, it would be a mistake to rely absolutely on the judgement of external recruitment consultants.

The only way to establish the true nature of such qualities is by extended personal exposure. As my mum is always telling me: "You don't know people until you live with them".

It is a source of continuing astonishment to me that very few companies go to the trouble of thoroughly reference-checking potential employees. When taxed with such dereliction of duty, the most common excuse is that "the only pertinent reference is the applicant's current boss and one cannot reasonably approach him while he is still in that employment."

But why not make the job offer subject to satisfactory references from his present employer once the job has been taken up? Clearly, any candidate objecting to such an arrangement is likely to be hiding something, and is best avoided.

If the chances of selecting the wrong people are significant, it is likely that at any given time you have in your team at least one "loser". The trouble is, how to identify them.

As far as I am concerned there are two kinds: honest and dishonest. While both have many symptoms in common, those of the latter group are usually the more difficult to identify.

Here are a few characteristics to watch out for:

Suspicious Absence. On occasions, the employee simply fails to show up for work. No forewarning or even any contact at all - he simply disappears. If he does call, the reason is usually something to do with ill-health. Typically, when he does report for duty, his excuse is either very elaborate or extremely lame.

Continual Bad Luck: Success managers constantly to elude them. The competition offers dramatic discounts, special features, faster

lunches". Sadly, all this work sedition, if ever, generates any business.

Personal Problems: We all have personal problems from time to time, but the loser has more than his share. It's not his fault of course, but his wife, or kids, who are dragging him down. So, he really has to spend lots of time sorting it out, or taking the kids to school, and so on.

The list of possible symptoms is endless and many of them are not unique to malingers and scroungers. What is special to the loser is that he always has at least one of them running at any given time.

In my experience one's "gut feel" is always right. If you suspect one of your subordinates is cheating, it's almost certain he is. Invariably, you discover that areas of suspicion are but the tip of an iceberg of dishonesty in one manifestation or another. So, act early for delay may allow the problems to drift beyond the company to your clients, putting your hard-earned professional credibility at risk.

Don't allow your judgment to be over-ruled by tolerance, understanding and altruism for that is the basic sustenance of the loser.

Unfortunately, a growing business like the computer industry gives a lot of scope for "guarantee hoppers" and other types of losers. Sales managers must constantly be on the lookout for such people because the price of failing to identify them can be very high.

Thorough and pertinent reference checking is about as near as you'll come to preventing losers getting on board in the first place, but don't imagine they'll never get into your team - because they will.

So keep on the lookout...
Alan Williams

PUZZLE ANSWER

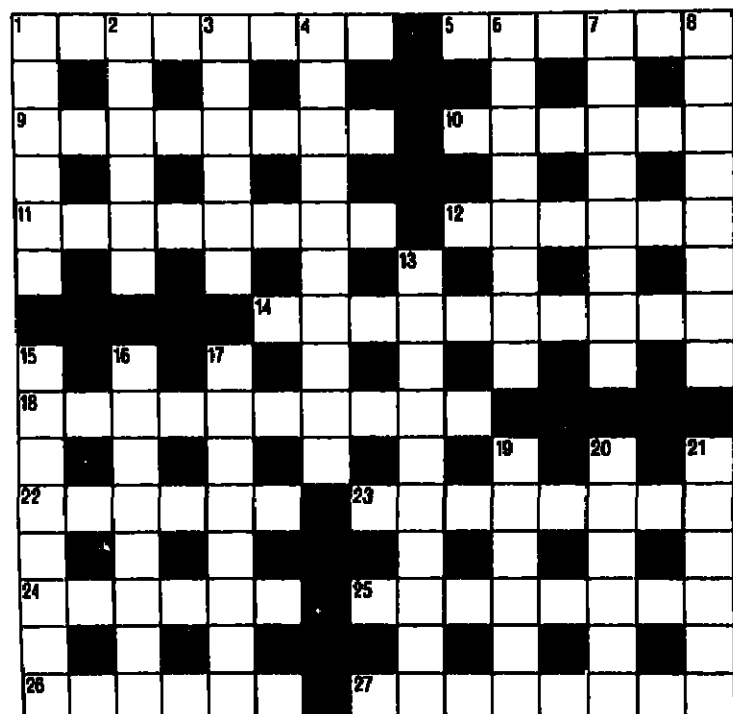
THE three rats of progress are uphill 2, lower, downhill 5, on the level 3, sec.

CROSSWORD

Prize Crossword No 50

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS, by first post Friday, March 16. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name..... (Miss, Mrs, Ms, Mr)

Address.....

Telephone.....

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed..... Date.....

ACROSS

- 1 Shrug indifferently about ancient dash to stake claims (4-4)
- 5 Dined, tucking into fish, having a protective cover (6)
- 9 Kettle used, oddly, by dour clan (8)
- 10 Idiot's expelled from class by a man, a man of the cloth (6)
- 11 Control speed, holding toboggan back (8)
- 12 Joined by treaty, recovered after losing leader (6)
- 14 Albert, perhaps, has to keep an eye on the tea at home (5-5)
- 18 It's not a good aim to dwell in retirement under canvas (4, 6)
- 22 One who digs, beginning to disinter a young wriggler (6)
- 23 Girl showing anxiety about money item (8)
- 24 Embroid, at a Cambridgeshire town, very much (6)
- 25 Seeker of custom grabs one, blushing and weary (5, 3)
- 26 Clothes worn by widow? (6)
- 27 To abandon an executive plane, for example, is not unusual (8)

DOWN

- 1 Child's carriage in which an engaging tooth is lifted with skill (2-4)
- 2 To loil and be thrusful about nothing (6)
- 3 A flat iron plate with no top? It's puzzling (6)
- 4 Abbreviated garments causing gasps (5,5)
- 6 Silo specially constructed to beat a source of pollution (3-5)
- 7 Final part of school year in almost everything (8)
- 8 Degenerate rotter, ducked in river, not disheartened (8)
- 13 Scrutinise naughty ladies, getting shock (10)
- 15 Expert marksman of French commercials, passionate (4-4)
- 16 Conversation that's proper about one acquiring a record (8)
- 17 Defamed and made false statements about a beauty endlessly (8)
- 19 Powerful vessel about to catch up (6)
- 20 Spots about four loose pieces of turf (6)
- 21 Unit of force, modern, having great weight (6)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of Business Press International Ltd, any printers employed by them or the relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

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(15/84)

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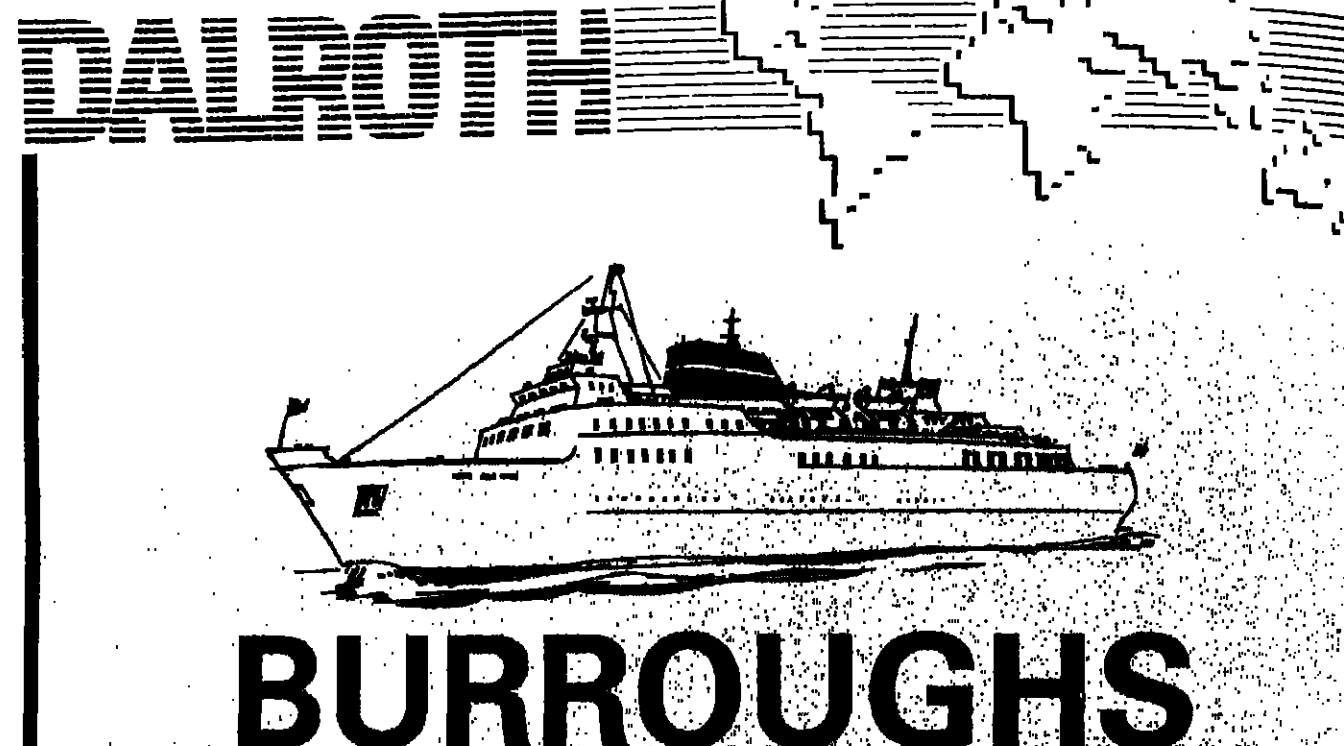
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Alan C. Wood, Managing Director, Digitus Limited,
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(46/72)

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Our computer network, centred around an ICL 2986 (running VME and George III) employs DEC, VAX and POP/11 mini computers and DHS terminal systems at distributed locations. Micros are continuing to be installed in our wholesale outlets and these communicate with the centre by autodial.

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